AUGUST 11, 1958

STEEL
The Metalworking Weekly

A PENTON PUBLICATION

PROSPECT

PROSPECT

PROSPECT

PROSPECT

Hard-Time Selling

—Page 32

What the Steel Price Increase Means . . . Page 27

Grain Size Is Key to Extruding Moly . . . Page 82

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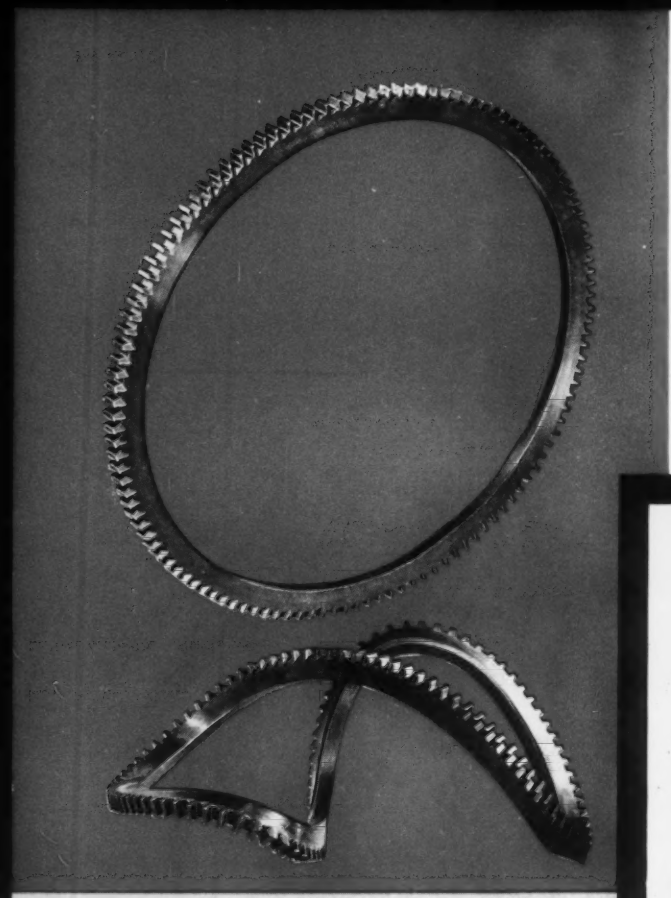
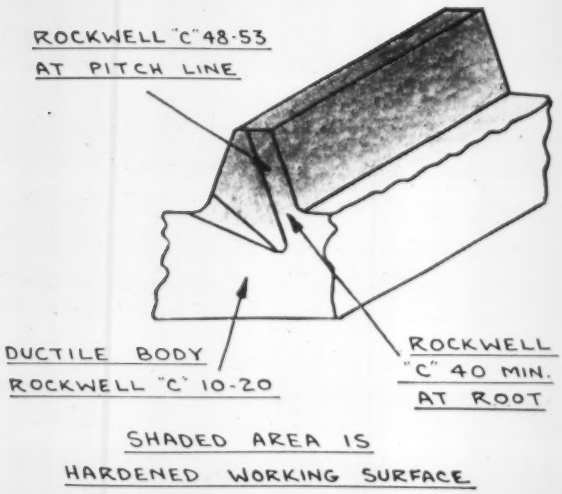


THIN! TOUGH! ...and "tender-hearted"



THE MANUFACTURE of flywheel ring gears poses special problems. Sectional thickness is usually less than three-quarters of an inch. To withstand the impact force of the starter pinion, the gear teeth must be hard. But the gear body itself should be unhardened so that it will conform tightly to the flywheel, and "give" under the stress that might snap a brittle gear.

Note how DOUBLE DIAMONDS are made to be thin, tough, "tender-hearted." The above photo of a gear twisted into a pretzel shape graphically demonstrates ductility. The sketch at right shows three important areas: the wide and deep hardness pattern, the generous area of transition, and the ductile body. These extremes are achieved in DOUBLE DIAMOND Flywheel Ring Gears by controlled selective heat treatment—all essential to flywheel ring gears that provide the best possible performance.

Our Engineering Department will be glad to make constructive suggestions on the design of flywheel ring gears, or on the many other types in which we specialize. Write, phone or wire—depending on the urgency of your need.

EATON

AUTOMOTIVE GEAR DIVISION
MANUFACTURING COMPANY
RICHMOND, INDIANA

GEARS FOR AUTOMOTIVE, FARM EQUIPMENT AND GENERAL INDUSTRIAL APPLICATIONS
GEAR-MAKERS TO LEADING MANUFACTURERS

FOR FAST DELIVERY—ORDER BETHLEHEM HEADS FROM STOCK SIZES. To help you maintain production schedules, Bethlehem stocks a wide variety of sizes of flanged-and-dished heads for prompt delivery. These heads are available in ASTM Spec. A-285, Grade C Flange or Firebox steel. They meet every requirement of the ASME Code for boilers and unfired pressure vessels.

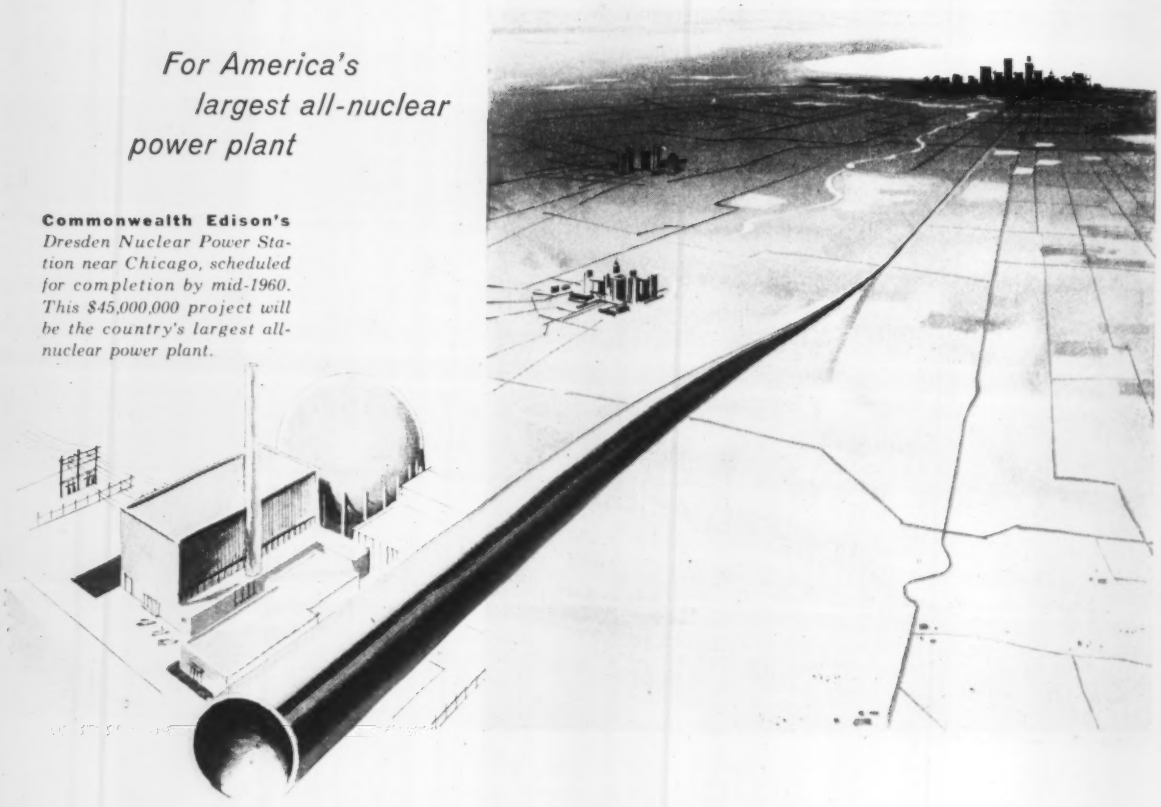
The nearest Bethlehem sales office will be glad to supply you with our stock list, or with full information on other sizes and styles of heads.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

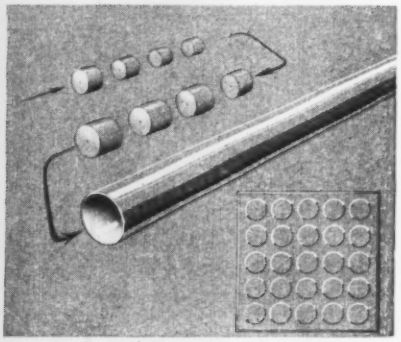
For America's largest all-nuclear power plant



Commonwealth Edison's *Dresden Nuclear Power Station near Chicago, scheduled for completion by mid-1960. This $45,000,000 project will be the country's largest all-nuclear power plant.*

44 MILES OF ZIRCONIUM TUBING

being processed by Mallory-Sharon



To form fuel rods, *cylindrical pellets of UO_2 are inserted in Zircaloy tubing. Tubes are sealed and welded, then assembled into "bundles" to form the rod-type element (inset).*

Here you see a striking example of zirconium's place in nuclear power . . . and of Mallory-Sharon's leadership in zirconium production and technology.

The largest order ever placed for zirconium tubing—almost 44 miles of it—is now being processed by Mallory-Sharon, in conjunction with Bridgeport Brass Co., for the Dresden Nuclear Reactor. Made of reactor-grade Zircaloy-2, 9/16" diameter and 1/32" wall thickness, the tubing must meet rigid tolerances . . . pass special pressure, sonic and corrosion tests. Fabrication of fuel elements is by the Atomic Power Equipment Dept. of General Electric, at San Jose, California, designers and builders of the Dresden Station for Commonwealth Edison.

As the largest integrated producer of zirconium, titanium and special metals, we invite you to write for information on either reactor-grade or commercial grade zirconium. Our Service Engineering group is ready to work with you *now* on either nuclear or commercial applications.

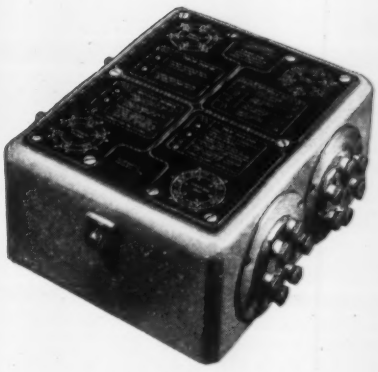
Write for new booklet, *"Technical and Application Data on Zirconium and Hafnium"*.

MALLORY MS **SHARON**

MALLORY-SHARON METALS CORPORATION · NILES, OHIO

Integrated producer of Titanium • Zirconium • Special Metals

By simply presetting this Electro-Cycle Drum Control, spindle speed, starts and stops, spindle direction and reverses for each turret face are automatically controlled. Your operator can quickly handle large volumes of precision work, without tiring himself on time-consuming manual operations.



Warner & Swasey Electro-Cycle® Turret Lathe boosts production 30% at Decatur Pump Co.

Automatic lathe operation, provided by the Electro-Cycle principle, substantially reduced both handling time and operator fatigue. Immediately, production increased and profits improved.

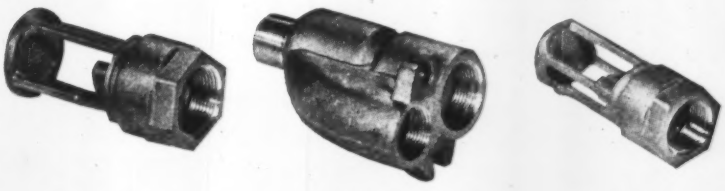
This nationally-known producer of "Burks" Super Turbine and Centrifugal pumps, located in Decatur, Illinois, recently replaced a conventional geared head turret lathe with a new Warner & Swasey No. 3 Electro-Cycle. Immediately, their production of pump jet bodies—machined from bronze castings—increased 30%.

Using his new Electro-Cycle, the operator easily produced more finished parts per shift because:

- **Workpiece handling was cut to a minimum.**
- **Fatigue was substantially reduced.**
- **Automatic operation eliminated all time-consuming hand work.**

On both ferrous and non-ferrous materials, Electro-Cycles are daily turning in equally impressive records in machine shops all over the nation. Why not ask our Field Representative to show how they can help increase your production—and profits, too.

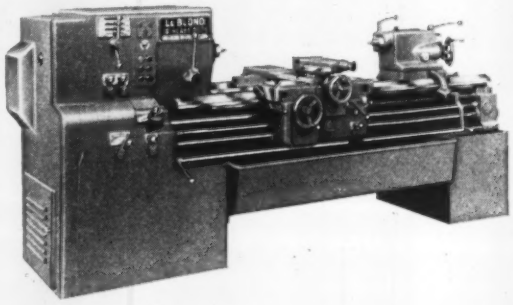
® Reg. U. S. Pat. Off.



WARNER & SWASEY
Cleveland
PRECISION MACHINERY SINCE 1880

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY

THE PRECISEST LATHES IN EVERY CLASS YOU'LL FIND IN THE LINE OF LeBLOND



This is the LeBlond 16″ heavy duty engine lathe. Engineered to give you the only kind of precision that really counts—*lasting* precision. Another reason you cut with confidence on a LeBlond. Write for your LeBlond Complete Line Catalog No. C-58.

THE R. K. LEBLOND MACHINE TOOL CO. CINCINNATI 8, OHIO

World's Largest Builder of A Complete Line of Lathes for More Than 71 Years

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August 11, 1958
Vol. 143 No. 6

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STEEL, the metalworking weekly, is selectively distributed without charge to qualified management personnel with administrative, production, engineering, or purchasing functions in U. S. metalworking plants employing 20 or more. Those unable to qualify, or those wishing home delivered copies, may purchase copies at these rates: U. S. and possessions and Canada, $10 a year; all other countries, $20 a year; single copies, 50 cents. Metalworking Yearbook issue, $2. Published every Monday and copyright 1958 by Penton Publishing Co., Penton Bldg., Cleveland 13, Ohio. Accepted as controlled circulation publication at Cleveland, Ohio.

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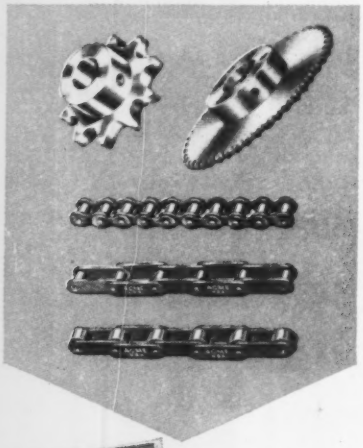
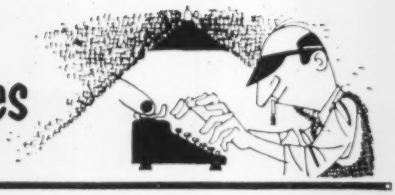
★ Simplifies purchasing.



Write Dept. 10-B for new 100-page Illustrated Catalog, including new engineering section showing diagrams of 36 methods of chain driving.

Acme Chain Corporation
HOLYOKE MASSACHUSETTS

behind the scenes



Buzzing Cover

Let us fly away, in fancy, with this issue of STEEL to Boston, Paris, Rome, Madrid, and Dublin. The cover is bound to stir up much comment, and we are not above eavesdropping. Indeed, the appearance of a bee on a STEEL cover is a most unusual occurrence, and we would be remiss in our duties as tub thumper if we failed to make the most of it.

From an office high above the Charles River in Beantown: "Really! Apis mellifera, family apoidea, if my memory serves."

Over an aperitif on the banks of the Seine: "Sacre bleu! C'est un abeille!"

Through a transom in an office leaning against one of the seven hills of Rome: "Per Bacco! Una pecchia!"

Whispered in amazement from the siesta shade in Madrid: "Que tal! Una abeja!"

Shouted in a Dublin pub: "Ouch!"

Clearly, the last remark required some explanation. "May we inquire, sir, why STEEL's cover moved you so deeply?"

"Well, it was on a chair, d'ye see, and Oi sat down on it."

"And what has that got to do with your shouting?"

"Ha! Did you ever sit down on a bumblebee?"

So much for imagination. Now for the facts. The title "Hard-Time Selling" stirred up some slight confusion among the hired hands. One school contended that it connoted extreme difficulty in making sales, something like trying to sell copies of *God's Little Acre* at a Sunday school convention. The other faction declared that it meant knocking on doors in depression times. In the first figure, prospects could buy, but wouldn't; in the second, they would buy, but couldn't.

As it turns out, "Hard-Time Selling" (Page 32) is aptly described. The article lists helpful sales practices, recognizes that the old "soft-sell" days are gone, and shows how orders can be cultivated in areas where faint hearts usually surrender. Hard-time selling means that salesmen have to get out and call on prospects, and rehearse their acts, and improve their stories, and knock, knock, knock—not their competition, but on their prospects' doors. STEEL Artist Tom Bryan figured that everybody knew how the busy little bee knocks itself out every shining hour calling on the trade, and that's how a member of the apoidea family finally made STEEL's front cover.

Help for Renegotiation

If your company handles government contracts running into a million dollars or more, clip the article "Renegotiating Government Contracts" (Page 30), and pass it around. This report brings us up to date on workings of a gimmick in federal contracts that could really burn you.

Renegotiation is a device whereby the government, after promising to pay a certain consideration in return for services rendered, reserves the right to welsh on the deal. It can summon your records and examine your profit. "You shouldn't ought to of made that much dough," it can say. "You're out of line, sonny. Kick some of that moola back to Uncle Whiskers, and be glad that money ain't ever'thing."

No businessman cares to figure his profits with the understanding that if he's right he's likely to be wrong, and if he's wrong to begin with, he can't stay in business very long. Beyond this, contracting parties who have been bitten once by Uncle Sam are careful to avoid future contracts. All this could lead to a pretty kettle of fish, but we're happy to see in STEEL's article that relief is on the way.

Burning Blue

When Associate Copy Editor Glenn Dietrich checked the contents page of the Aug. 4 issue of STEEL, he noted a small picture of a hand holding a match. It was a diminutive replica of the cover art, but whereas the cover match burned red, the small replica burned blue. Glenn was disturbed. If he was stuck with blue on Page 5, there was nothing to do but get rid of the match. Wherefore he ordered a small halftone engraving of an illustration gracing a story on arbitration. This could run in blue without causing confusion, so he called Production Manager Albert Anderson.

"Is that a nice, solid blue you scheduled for Page 5?" he inquired.

"It was," said Andy, "but it isn't blue any more. It's yellow."

Glenn recovered his match in a hurry, and while it burned red on the cover, it glowed yellow on the contents page.

A Yard of Slack

Let us assume that the earth is exactly 25,000 miles in circumference at the equator. Let us assume further that you have a piece of string 25,000 miles 3 ft long. If this were wrapped around the equator, both ends touching, how far would the string stand off the ground at each point, simply because it was a yard too long?

Shrdlu

(Metalworking Outlook—Page 21)

"We get ten refrigerator pans a minute...

from one press and with one attendant!" From its motorized coil cradle to its mechanized conveyer, this is a truly automated production unit. Coil stock feeds through the press' seven transfer stations... is easily formed and drawn into deep drawn refrigerator pans. Bliss engineers design and build entire systems like these, including the dies.

Can a transfer feed press work for you? Best way to find out is to ask—ask the people who introduced them in the nineties and have pioneered in their improvement since. Or send for new, case history-packed brochure.

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REPUBLIC ALLOY STEEL solves...
crown block strength and weight problems

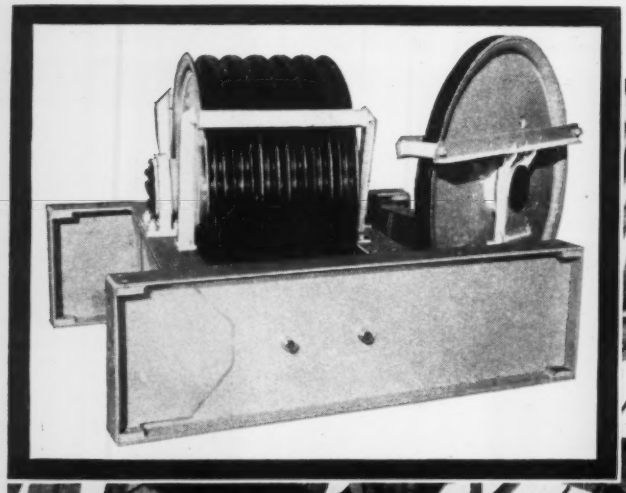
Oil field equipment made of alloy steels can mean the difference between a successful well or just a hole in the ground. This is particularly true in deep drilling operations.

Lee C. Moore Corporation, manufacturers of oil field equipment, uses Republic 4150 Hot Rolled Alloy Steel for shafting in cantilever mast crown blocks. The Republic Alloy Bars are machined for use as crown block shafting at the top of the mast.

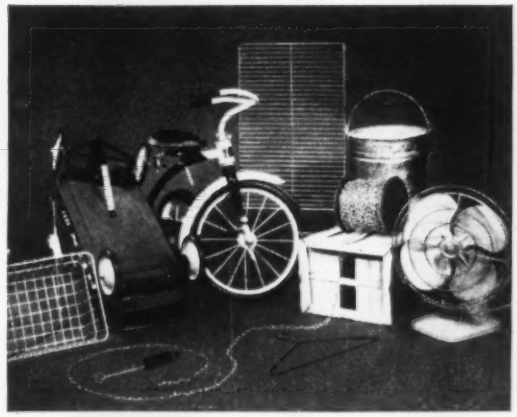
This shafting must be able to absorb sudden shock and impact without failure. It must have built-in strength to carry the tremendous weight of the drill pipe. Republic Alloy Steel meets these requirements by providing an outstanding combination of qualities which permit designing smaller sections to move or carry heavier loads with no sacrifice of strength or safety.

Republic Alloy Steels are unusually tough and strong. These fine steels provide an exceptionally high strength-to-weight ratio that permits the transmission of hundreds of horsepower through tough, strong shafts, gears, and axles free from excess weight. Alloy steel's uniform response to heat treatment results in hard surfaces around tough cores providing maximum resistance to abrasion, friction, and wear.

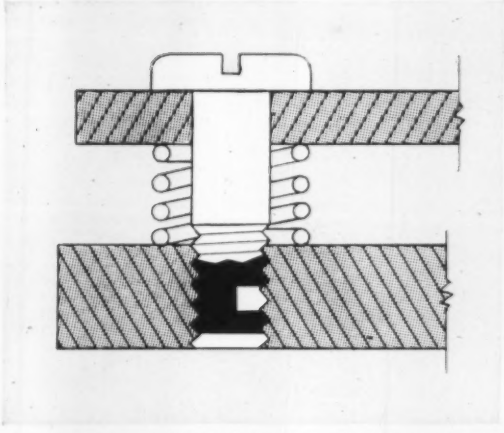
Learn first-hand how Republic Alloy Steels provide dependable, economical, day-in, day-out service. Call your Republic representative, or write today.



This cantilever mast crown block, manufactured by Lee C. Moore Corporation, Tulsa, Okla., features a shaft made of Republic Alloy Steel.



REPUBLIC MANUFACTURERS' COARSE WIRE to meet every production need. Box Binding and Stapling, Brush Handle, Chain, Garment Hanger are only a few of the qualities regularly produced. Large tonnages are shipped to manufacturers of fan guards, wire partitions, concrete reinforcing specialties, plated shelves, racks and grilles, and numerous other products. Republic wire metallurgists are available to help you in solving production problems. Write today.



REPUBLIC SELF-LOCKING NYLOK® BOLTS provide single-unit answer to vibration, liquid-sealing and adjustment problems. Secure grip is provided by nylon pellet permanently imbedded in fastener body. Continual pressure of resilient nylon forces tight metal-to-metal lock between mating thread opposite the pellet. Write for complete information.

REPUBLIC STAINLESS STEEL meets high temperature and stress requirements. In this official U. S. Army photo, striped area indicates nose cone of "Explorer I" fabricated from Republic ENDURO Stainless Steel, Type 430. Produced by the "Floturn Process", wall thickness of the cone can be increased in specific areas to comply with design requirements of high temperatures and stresses. Additionally, stainless steel provides low thermal expansion and is highly resistant to atmospheric corrosion, erosion, and oxidation at high temperatures. Mail coupon for more facts.

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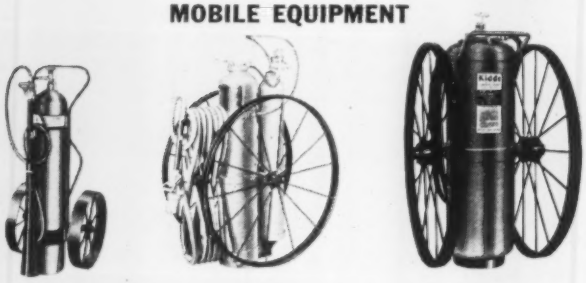
GET THE JUMP ON FIRE
with Kidde extinguishing equipment!

PORTABLE EXTINGUISHERS

Left to right: carbon dioxide trigger, carbon dioxide squeeze valve, 2½ gallon foam, 2½ gallon pressurized water, 20-pound pressurized dry chemical, 20-pound cartridge-operated dry chemical, 2½ gallon pump tank, one quart pressurized VL. Also 1 gallon pressurized VL and 1 and 1½ quart pump VL.

Kidde hand portables are designed to knock fires out *fast*, come in a variety of types and models. The Kidde line includes carbon dioxide extinguishers with fast-acting trigger release or squeeze-valve release in capacities of 2½ to 20 pounds. Kidde dry chemical extinguishers can be had in pressurized models of 5, 10, 20 and 30 pounds capacity, and in cartridge-operated models of 20 and 30 pounds. Kidde wet chemical extinguishers (foam, soda-acid) are available in 2½ gallon bronze or stainless steel models, including cartridge-operated and pressurized water or water-anti-freeze units. Kidde vaporizing liquid extinguishers come in pump capacities of 1 and 1½ quarts, pressurized in 1 and 1½ quarts and 1 gallon. Kidde pump tank extinguishers, in steel or copper shells, are available in 2½ and 5-gallon sizes.

MOBILE EQUIPMENT



Left to right: 100-lb. carbon dioxide, 150-lb. dry chemical, 40-gal. foam. Also 40-gal. soda-acid.

For major fire hazards, get a mobile unit. Wheeled carbon dioxide units are available in 50, 75, and 100-pound capacities, in one cylinder. Shut-off valve located at nozzle gives operator complete control. 150-pound dry chemical unit has straight stream for long range . . . fan pattern for wide coverage. Single-lever control for "on," "off," "fan," or "straight" discharge pattern. 50 feet of hose. 40-gallon wheeled foam unit delivers more than ten times its liquid content capacity in fire-smothering foam. Ideal protection against flammable liquid fires. All give expert results even with inexperienced operator.

SMOKE AND FIRE DETECTORS, CARBON DIOXIDE SYSTEMS

Kidde Industrial Smoke Detectors give you a fire warning where it counts—at the smoldering start of a fire—tell you fire's location, give you a visible and audible alarm.

Kidde Atmo fire detecting and warning systems afford wide-area protection, are ideally suited for cases where early detection of fire in valuable materials is essential. Working on the principle of rate-of-temperature-rise, Kidde Atmo systems give warning at the first hot breath of fire, can be used to shut off fans, close doors, etc.—all automatically.

Kidde carbon dioxide extinguishing systems are individually designed to fully protect even the most dangerous hazards, use pneumatic control heads to insure instant and complete carbon dioxide discharge. Directional valves afford protection to more than one hazard using the same bank of cylinders. All operating parts are self-enclosed for safety. Visual indicators show at a glance if system is "set" or "released." Thermostatically-operated systems, and package systems for 6000 cubic foot flammable liquid hazards are available.

Kidde

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Montreal—Toronto—Vancouver

LETTERS
TO THE EDITORS

Small Car Owner Queries Detroit

In your July 21 Mirrors of Motordom (Page 86), you say: "With small car tooling already underway, Ford and General Motors still seem to be trying to justify building an American economy type car. Detroit isn't sure that the apparently growing market for European imports means people will buy U. S.-built economy cars."

Last month, we bought the second "furrin" car, mostly because it is adequate, safe, and comfortable transportation—and easily handled on streets and highways. Initial price and operational costs are not especially important to me, nor I suspect, to a few hundred thousand other owners.

Detroit seems to have a guilty conscience or else a fixation on price, with the fool notion that a smaller version of the Detroit behemoth is what we all pant for. As if they never heard of convenience, nor cornering and steering ease, and related characteristics common to most imports, even well under $2000 (as is ours).

Have you ever asked your readers owning foreign cars if they can do without Detroit "style" readily, also motivational research and "prestige"? If they would like to go back to old Henry Ford's criterion: Simple, runs, in the low price range?

Theodore Kain

945 St. Paul Ave.
St. Paul 16, Minn.

STEEL Coverage Is First

Things are certainly progressing. STEEL had the great foresight to reproduce almost verbatim one of my papers, "Explosive Forces Widen Metallurgical Studies," in your Nov. 20, 1950, issue. This was the first public indication that explosives might have considerable commercial utility in the metals industry.

As the years go by, I must confess that I have been astounded by the way in which industry has taken up the challenge and is now envisioning the commercial utilization of explosives in a major way in their metal forming processes, particularly those situations where mechanical forming is unfeasible. I have been literally beseiged by commercial users who are anxious to find out the present state of the art.

I was, therefore, delighted to hear that

(Please turn to Page 12)

for every wheel that turns in industry

Lubricating oils, cutting oils, multi-purpose greases, greases for spraying . . . whatever your needs, Atlantic has the lubricant to help you. Atlantic lubricants insure maximum lubricating performance at low cost for every job in the plant . . . for every wheel that turns in industry.

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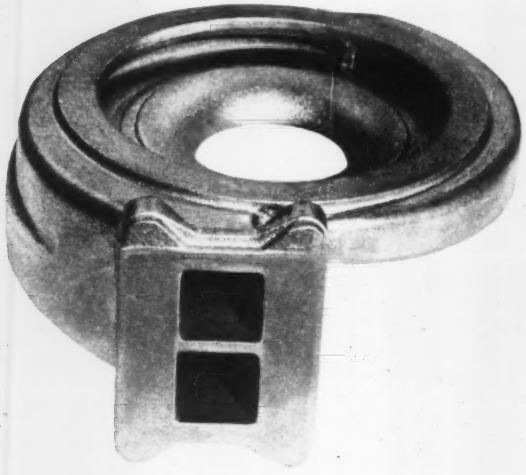


SAVE WHEN THE HEAT IS ON

This 20 pound Ni-Resist casting made for the Schwitzer Corporation by Hamilton Foundry is the turbine casing of a diesel engine turbocharger. Exhaust gases which turn the impeller at speeds up to 90,000 rpm subject the housing to rapid cyclic temperature changes up to 1500° F. Any free scale formed at these temperatures could erode and eventually destroy the impeller blades. Ni-Resist was chosen for this part because it produces practically no free scale, it resists growth and oxidation at high temperatures, and it resists cracking under thermal shock.

Unit production costs are lowered by finding and using the most efficient material available. In this case, Ni-Resist castings combine design flexibility and machinability with long service life under severe temperature stresses. Ni-Resist castings from Hamilton Foundry have dimensional accuracy, uniform machinability, fine surface finish, a low rejection rate, and are delivered on schedule—a combination of factors which lower unit costs and insure Schwitzer's reputation for product quality.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE ® • DUCTILE (NODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD

HAMILTON FOUNDRY

The Hamilton Foundry & Machine Co., 1551 Lincoln Ave., Hamilton, Ohio • TW 5-7491

LETTERS

(Concluded from Page 10)

your magazine is preparing an article which should be of some help to these people.

John S. Rinehart

Assistant Director
Astrophysical Observatory
Smithsonian Institution
Cambridge, Mass.

o STEEL's *article on explosive forming of metals is planned for publication in the Aug. 18 issue.*

Pricing Data to Management

Please send six copies of the Program for Management article, "Pricing for Profit" (June 16, Page 87). They will go to top management.

John H. Lafferty

Manager, Cost Department
Hobart Mfg. Co.
Troy, Ohio

Steel Salesman Likes Data

Please supply me with a copy of the article, "Are Your Inventories Right?" (June 2, Page 35). I sell steel for two noncompetitive warehouses. The information in this article is especially pertinent to the processed flat-rolled business.

Linton T. Steepee

Manufacturer's Representative
Webster, N. Y.

Article Interests Manufacturer

Your article, "Warm Heading Tackles Tough Metals" (July 21, Page 114), is of great interest to us. We would appreciate four copies.

B. J. Stahl

General Manager
Stahl Mfg. Co.
Detroit

One of Finest Guides Produced

We have read the Apr. 21 issue of STEEL and have found your "Guide to Tool Steels & Carbides" to be one of the finest crossindexes ever produced. Please send six copies.

J. J. Babbo

Wilkof Structural Steel Corp.
Canton, Ohio

President Requests Reprint

Please send six reprints of the Program for Management article, "Finding Out What Customers will Buy" (July 14, Page 101). Thank you for making extra copies of your articles available to your readers.

W. L. Clifton Jr.

President
American Art Metals Co.
Atlanta

• • •

Please send 25 copies.

D. F. Jurgensen

Vice President-Development & Research
Blaw-Knox Co.
Pittsburgh

At the Rapistan plant,
Youngstown Cold-Finished Steel Bars are fabricated into axles for roller conveyor units and assembled into finished Rapistan table sections.

Accent on Excellence

Youngstown cold-finished steel bars

Without highly efficient gravity conveyor systems—such as this Rapistan Gravity Wheel installation—to provide economical material handling, modern manufacturing plants would find their costs getting out of line—profits shrinking.

In producing their rugged conveyors, Rapids-Standard Company, Inc., of Grand Rapids, Michigan, use and rely on Youngstown's Hot-Rolled and Cold-Finished Bars, Hot and Cold-Rolled Sheets as well as Standard Pipe as an aid in keeping their product quality at the highest level.

Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".

QUALITY YOUNGSTOWN SERVICE

THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel, Youngstown, Ohio

Why automotive manufacturers prefer N-A-X® FINEGRAIN STEEL for bumpers

WIDE RANGE OF SHAPES AND CONTOURS
The complexity of today's automotive bumpers demands a steel that provides maximum strength plus unlimited shape and contour possibilities.

FLAT POLISHES TO A HIGH LUSTER
The hardness and fine grain of N-A-X FINEGRAIN renders this steel capable of assuming a high degree of luster at minimum cost.

REDUCES POLISHING COSTS
Bumpers made of polished N-A-X FINEGRAIN suffer no surface disturbances due to coarse grain or strain caused by the drawing process. Preparation costs before plating are thereby reduced.

LESS OVERHANG WEIGHT
Generally, the most difficult bumpers can be made of N-A-X FINEGRAIN with a minimum of 25% increased yield strength over mild carbon steel. This makes possible greater resistance to indentation and substantially decreased overhang weight.

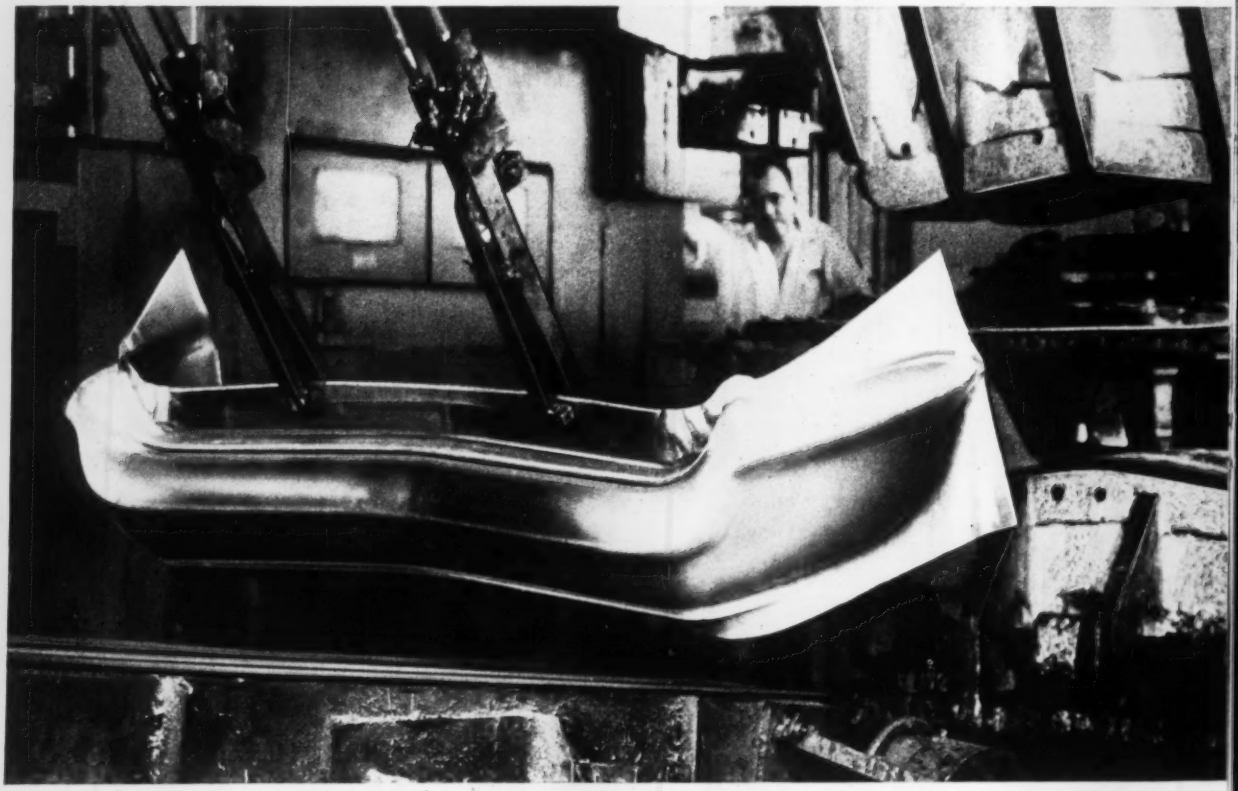
No wonder automotive manufacturers prefer dependable N-A-X FINEGRAIN for the difficult jobs.

CHECK THESE IMPORTANT ADVANTAGES FOR YOUR JOB:
N-A-X HIGH-STRENGTH steels—both N-A-X HIGH-TENSILE and N-A-X FINEGRAIN—compared with carbon steel, up to 50% stronger • have high fatigue life with great toughness • are cold formed readily into difficult stampings • are stable against aging • have greater resistance to abrasion • are readily welded by any process • offer greater paint adhesion • polish to a high luster at minimum cost.

Although N-A-X FINEGRAIN'S resistance to normal atmospheric corrosion is twice that of carbon steel, N-A-X HIGH-TENSILE is recommended where resistance to extreme atmospheric corrosion is important.

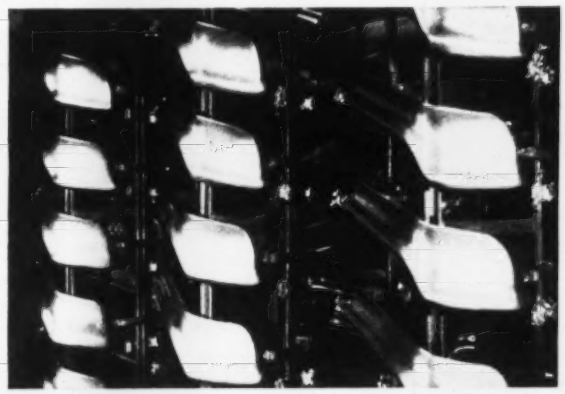
For whatever you make, from steel boats to steel bumpers, with N-A-X HIGH-STRENGTH steels you can design longer life, and/or less weight and economy into your products. Let us show you how.

3 Bumper wings, drawn double from N-A-X FINEGRAIN, emerge from press. After splitting and trimming, the protective draw coating is removed. Contoured bumper is then ready for plating without subsequent polishing.



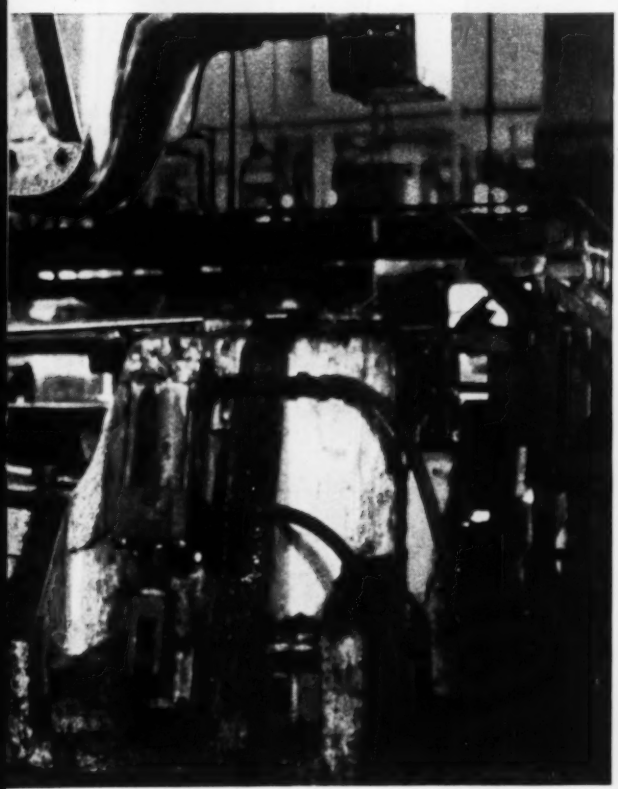
1 Hot rolled N-A-X FINEGRAIN sheets come out of flat polish with a finish of less than 10 microinches.

2 Sheet with protective phosphate and draw coatings comes from coating machine ready for the draw press.



4 Bumper wings loaded on elevator for plating. Protective coating has been removed. Note no surface disturbances occurred after drawing operation.

5 Final inspection after plating. No expensive hand-polishing was required from original flat polish to plating operation.



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Product Development Division, Dept. B-6

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Great Lakes Steel Corporation, Detroit 29, Michigan

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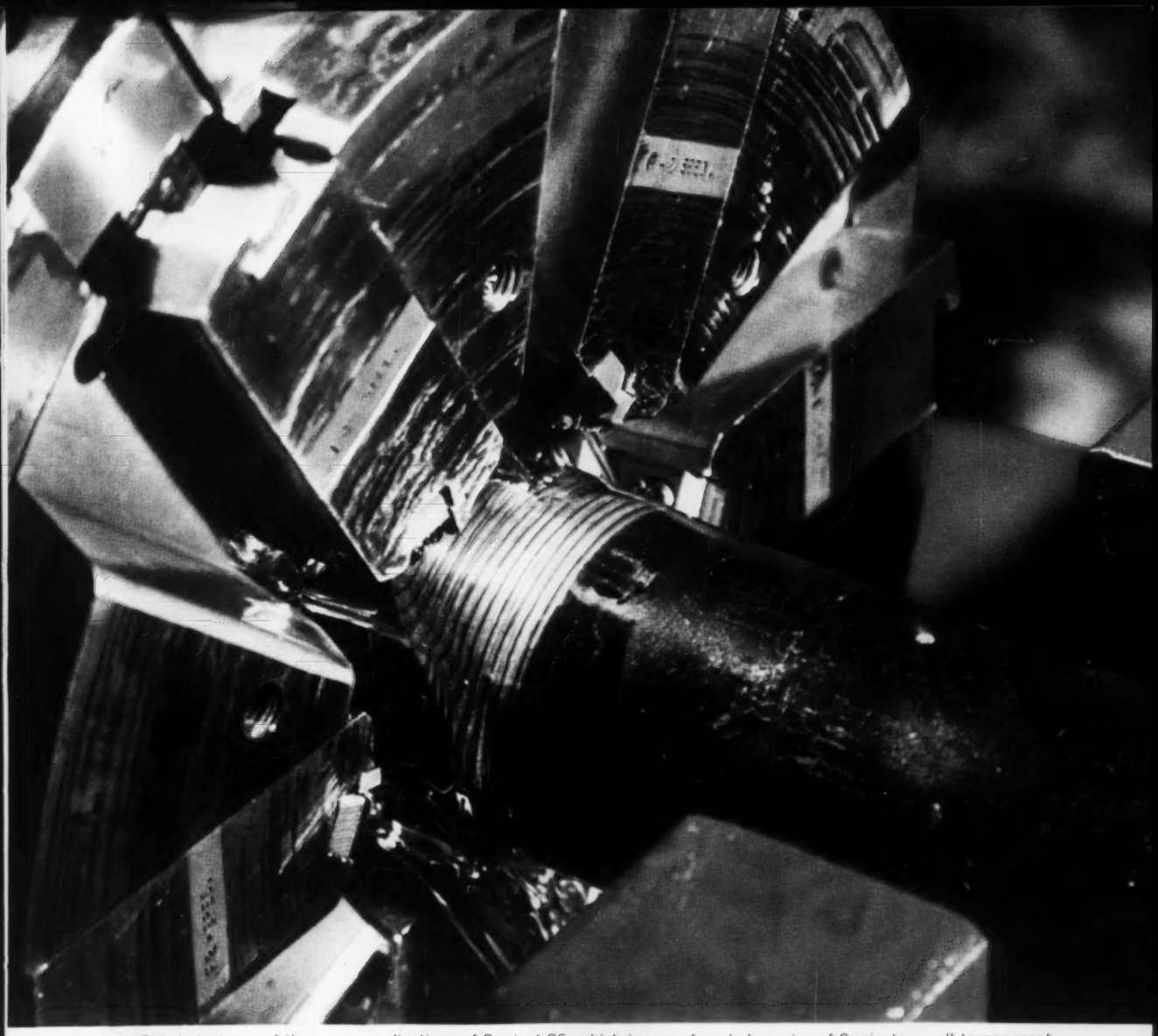

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SUNICUT 85 is a heavy-duty cutting oil that lets you see what you're doing

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CALENDAR
OF MEETINGS

Aug. 19-22, American Institute of Electrial Engineers: Pacific general meeting, Hotel Senator, Sacramento, Calif. Institute's address: 33 W. 39th St., New York 18, N. Y. Secretary: N. S. Hibshman.

Aug. 19-22, Western Electronic Show & Convention: Pan-Pacific Auditorium, Los Angeles. Information: WESCON, 1435 S. LaCienega Blvd., Los Angeles 35, Calif.

Sept. 7-12, American Chemical Society: National chemical exposition and conference, International Amphitheatre, Chicago. Society's address: 1155 16th St. N.W., Washington 6, D. C. Executive secretary: Alden H. Emery.

Sept. 8-11, Society of Automotive Engineers: Farm, construction, and industrial machinery meeting, production forum and engineering display, Milwaukee Auditorium, Milwaukee. Society's address: 485 Lexington Ave., New York 17, N. Y. Secretary: John A. C. Warner.

Sept. 10-11, American Die Casting Institute: Annual meeting, Edgewater Beach Hotel, Chicago. Institute's address: 366 Madison Ave., New York 17, N. Y. Secretary: David Laine.

Sept. 11-12, Refractories Institute: Fall meeting, Broadmoor Hotel, Colorado Springs, Colo. Institute's address: 1801 First National Bank Bldg., Pittsburgh 22, Pa. Executive secretary: Avery C. Newton.

Sept. 14-19, Instrument Society of America: Annual instrument-automation conference and exhibit, Convention Hall, Philadelphia. Society's address: 313 Sixth St., Pittsburgh 22, Pa. Executive director: William H. Kushnick.

Sept. 15-17, American Rocket Society: Fall meeting, Hotel Statler-Hilton, Detroit. Society's address: 500 Fifth Ave., New York 36, N. Y. Secretary: A. C. Slade.

Sept. 16-18, Electronic Industries Association: Fall meeting, St. Francis Hotel, San Francisco. Association's address: 1721 DeSales St. N.W., Washington 6, D. C. Secretary: James D. Secrest.

Sept. 17-19, National Industrial Conference Board Inc.: General marketing conference, Waldorf-Astoria Hotel, New York. Board's address: 460 Park Ave., New York 22, N. Y. Secretary: Herbert S. Briggs.

Sept. 19, Malleable Founders Society: Fall semiannual meeting, Hotel Cleveland, Cleveland. Society's address: 1800 Union Commerce Bldg., Cleveland 14, Ohio. Executive vice president: Lowell D. Ryan.

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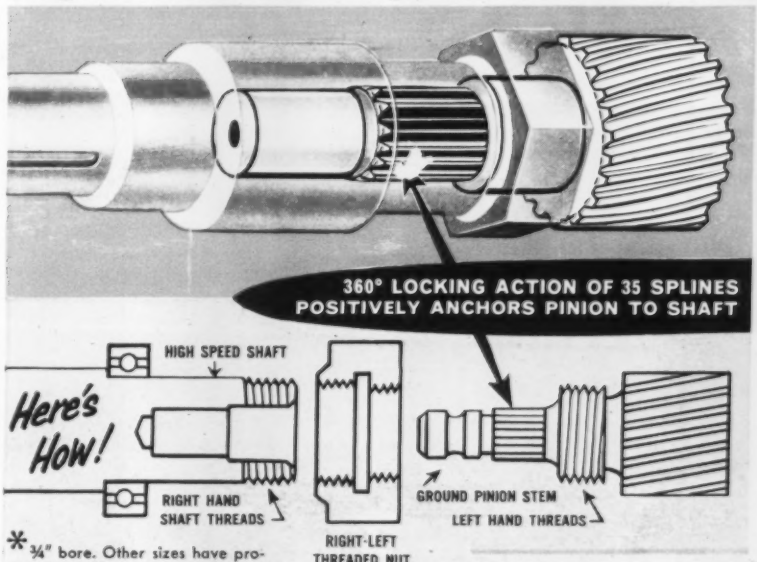
Takes 35 "Bites" *

to guarantee better power transmission



* ¾" bore. Other sizes have proportionately more or less splines.

SPLINE DRIVE PINION — Standard In GEARMOTORS AND LINE-O-POWER UNITS

advantages:

1. MORE LOCKING AREA

Self-broaching splines provide more internal locking surface than any other pinion . . . assure positive anchoring, even under reversing conditions.

2. GREATER STRENGTH

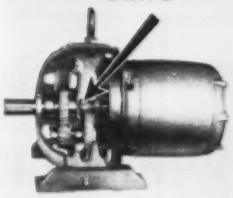
Gear and shank are machined from one piece. Solid construction and spline lock provide greater strength—no weakness due to projecting keyway.

3. PERMANENT, ACCURATE ALIGNMENT

Self-centering action of ground pinion shank in the accurately bored high speed shaft assures accurate assembly and alignment for smoother performance.

4. DUTI-RATED GEARING

Foote Bros. Spline Drive Pinions have the famous Duti-Rated Gear—harder, tougher and more accurate, with greater load carrying capacity for their size than any other gearing.



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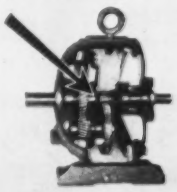

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SPLINE DRIVE PINIONS are another example of Foote Bros. leadership . . . another reason you can be sure you're buying the finest when you buy Foote Bros. Power Transmission Equipment.

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If there is a better steel for your operation, Ryerson can tell you. A Ryerson specialist will assist you in solving the problems of steel application and fabrication, too.

Ryerson strategically located plants carry large stocks to meet virtually every steel need. That's why the Ryerson specialist will suggest only the best steel for the job. He can offer you facilities and experience to help with design problems.

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Metalworking Outlook

UAW Doesn't Want Strike, but—

Despite the threatening noises from the United Auto Workers, the union isn't keen about striking any of the Big Three auto companies. It may be forced to hit the bricks because the Big Three are still adamant and still united. Their position: We'll extend the present contract and risk a strike rather than grant much more. Although a 1.4-million car buildup has been scheduled for the fourth quarter, automakers still do not expect a large sales surge in these months because buyers have not recovered from the recession. Market forecasts already indicate that 1959 sales will not be so great that the industry can't build all the cars needed in the first three periods next year. By holding back production, there also might be more pent-up demand when cars do start rolling.

Watch Ohio on Right To Work

Ohio will vote on a right-to-work law this fall. Approval would ban the union shop. Along with California, Ohio will provide a heavy industrial battleground for the issue this year. Victory over labor forces that oppose it would encourage proponents of the law in other industrial states. Although 18 states now have the legislation on their books, only one, Indiana, is substantially industrialized.

Fringe Benefits Climb $162

Fringe benefits average $981 per full-time employee per year, says the U. S. Chamber of Commerce which has just surveyed 1020 firms on their 1957 experiences. That's an increase of $162 since 1955, the date of the last survey. The $981 includes $310 for pensions and insurance, $311 for vacations and holidays, $170 for legally required programs (Social Security and others), $104 for rest periods, and $86 for other benefits.

How Unions Pay Striking Members

Strike benefits are paid by 43 of 78 national unions surveyed by the National Industrial Conference Board. The 78 unions claim 11.1 million members, about 60 per cent of organized labor. The 43 unions paying strike benefits claim 7.5 million members. Thirty of those 43 have established funds to provide strike benefits by earmarking specific amounts of the per capita tax paid to the national union by the locals. Those amounts range from 5 cents to $1 per month per member. The remaining 13 unions pay out of their general funds. Seventeen pay flat sums ranging from $5 to $40 a week, with a median of $18. Most unions pay sliding scales based on need, marital status, and number of dependents.

Texas Changes Its Mind

The Texas Highway Department at the last minute rescinded its proposed ban on the use of imported steel in road building projects. The U. S.

Metalworking Outlook

Bureau of Public Roads requested the action. Six other states are still enforcing bans on imported steel.

Memo on Metals

No attempt is being made to establish an international agreement on aluminum imports and exports . . . But reports are current that such an agreement is being talked about for lead and zinc, to be worked out through the United Nations . . . Don't look for any change soon in the copper import duty . . . Look for the Domestic Minerals Stabilization Bill to die a quiet death in the House Rules Committee, so far as this Congress is concerned . . . Harvey Aluminum Inc. has become the sixth domestic producer of primary aluminum with the opening of its reduction works at The Dalles, Oreg. Capacity will be more than 50,000 tons yearly. Harvey will start shipping pig within 60 to 90 days.

Help on Exotic Fuels?

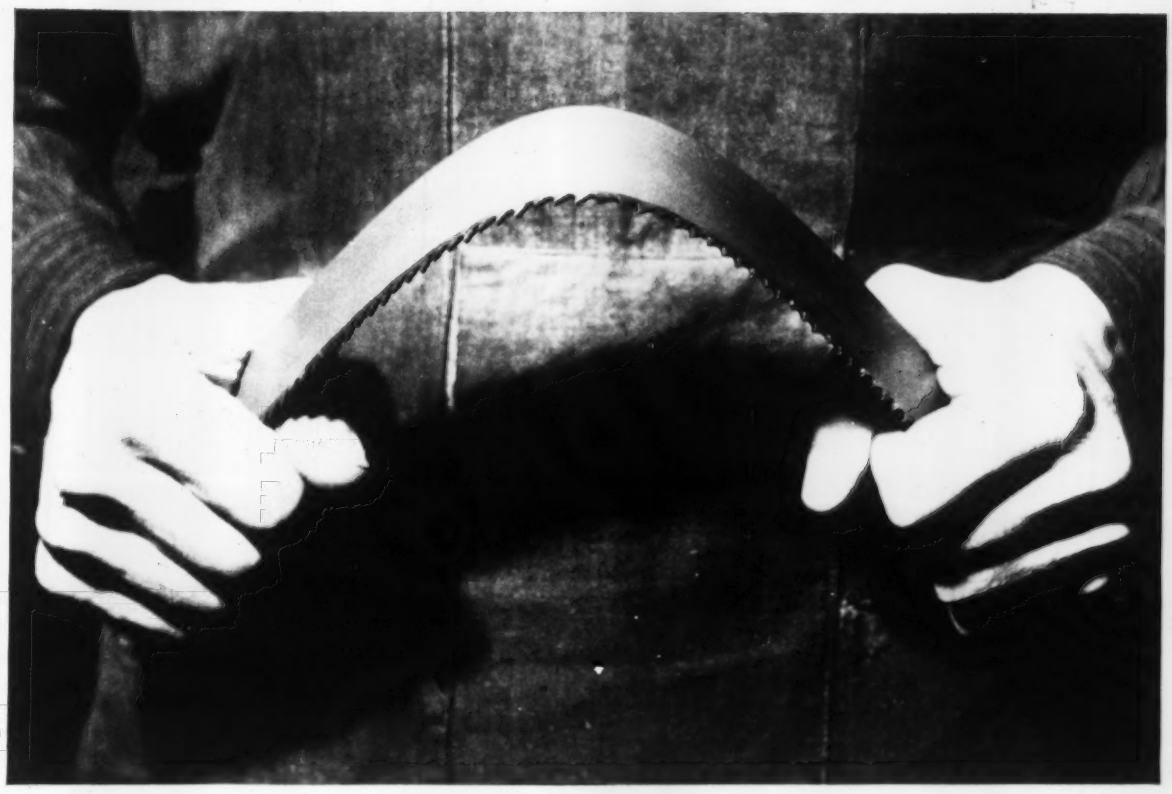
To boost production of exotic fuels and high temperature alloys for missiles and aircraft, the Office of Defense & Civilian Mobilization is asking Congress to forgive $300 million several government agencies owe the Treasury. (The money was originally borrowed for stockpiling.) No funds will be available after fiscal 1959 if the $300-million debt stands, under Defense Production Act provisions. An ODCM advisory committee has also strongly recommended a stockpiling program for materials like boron which go into the new fuels and special alloys. The only other way funds could be made available (besides a direct appropriation) would be through sale of the stockpiled minerals to pay the debt. That's highly unlikely.

Diemakers See Autumn Upturn

After a slight pickup in their business last spring, tool and die makers now say they're in a state of "watchful waiting." Orders for defense business have picked up, although other tooling orders are "spotty." Competition is keen. Most expect defense orders for tooling to be released at a faster pace this fall. Farm equipment companies have been ordering more special tooling than they have for several years.

Straws in the Wind

Inventories may be down, but they still tie up nearly 30 per cent of the working capital of the average U. S. company . . . American companies have sharply expanded contributions over the years and now regard donations as one of the business costs, the Conference Board reports . . . Youngstown Sheet & Tube Co. has restored some salaried workers to a 40-hour week . . . The Senate Finance Committee will hold only brief hearings on the House-passed bill to boost Social Security benefits and tax rates; chances are good for Congressional passage . . . Auto air conditioning is riding a boom despite the slump in car sales; volume will reach $150 million this year.



THIS is No Ordinary Power Hack Saw Blade

This is the *unbreakable* MARVEL High-Speed-Edge Hack Saw Blade—the first bi-metal blade—invented, developed and introduced by MARVEL. This blade is a combination of two materials best suited to the requirements of an efficient hack saw blade . . . a narrow high speed steel cutting edge permanently welded to a tough, non-brittle alloy steel body. Each blade is triple tempered to assure long life and maximum toughness to the cutting edge. Development of this high-speed-edge blade made it possible to cut any kind of material from the free machining steels to the toughest of alloys, fast, accurately and economically. Just one type blade to handle any job — no switching blades to cut different materials. Like all good things, attempted copies of this blade have been numerous, but its performance has been *unequalled* by any of the imitators.

The MARVEL high-speed-edge hack saw blade can be tensioned from 200% to 300% tauter than any ordinary hack saw blade, a definite advantage which permits heavier feed pressures to be used without deflection or fear of breakage.

An extremely rugged cutting tool, this one type blade, the MARVEL High-Speed-Edge Hack Saw Blade, will cut any machineable metal with outstanding economy, accuracy, long life and complete safety—*it is unbreakable.*

Ask for MARVEL Blades by name and you can be sure you're getting the best on the market. Leading Industrial Distributors have them in stock.

B-1120

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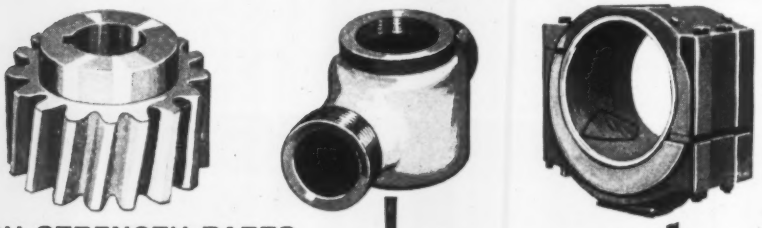
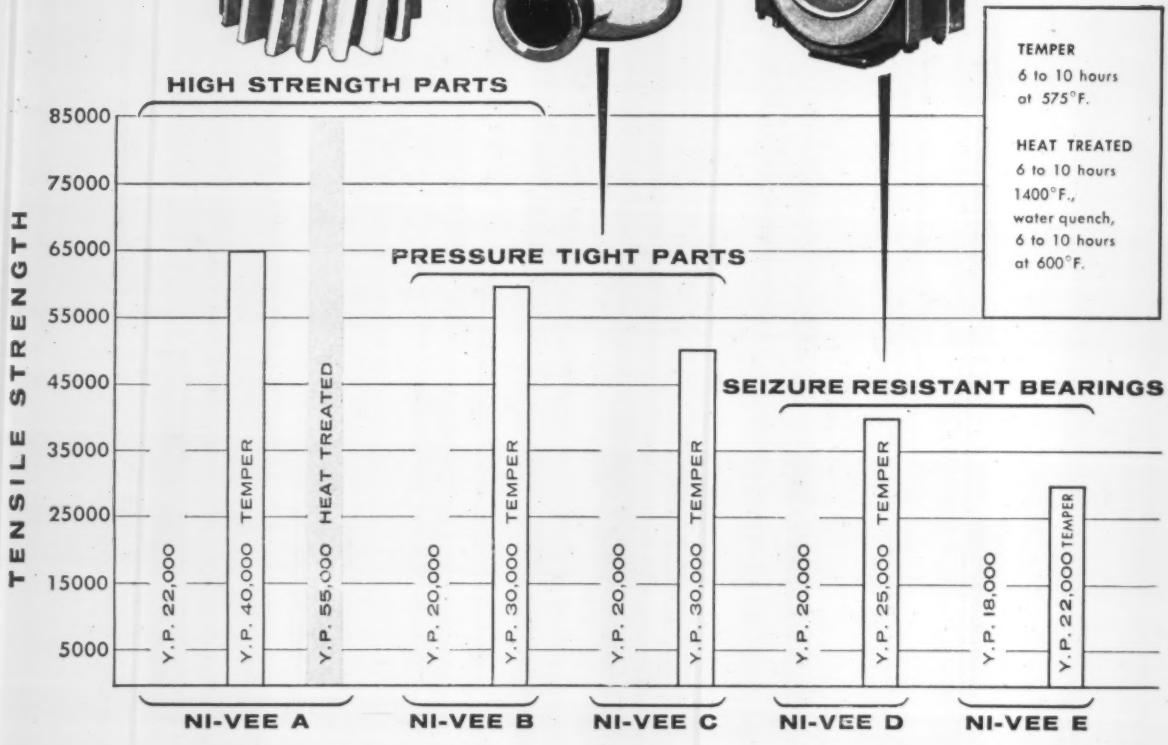
TYPICAL NI-VEE BRONZE PROPERTIES





5 high-performance bronzes

These versatile Ni-Vee alloys provide a range of properties that satisfies the requirements of most copper-base castings

The chart shows the range of tensile properties of the five Ni-Vee* bronzes and indicates the types of castings made with these alloys.

As you can see, you can satisfy the majority of your specifications for quality copper-base castings from among these five versatile Ni-Vee materials. Their "As Cast" mechanical properties – especially yield strength – surpass those of comparable G and leaded bronzes and red brasses.

The chart also shows what simple heat treatment does to step up their properties. Bear in mind that values taken from the chart are typical. In practice, higher values can be obtained.

Ni-Vee extras

You can expect superior performance from all five Ni-Vee bronzes. For example, Ni-Vee B, C, D, and E (the leaded group) can be used for castings of all three classifications shown. Ni-Vee A provides extreme strength. Ni-Vee E gives you extreme resistance against galling or seizure. The low zinc group (Ni-Vee A, B, D and E) show little tendency to dezincify, insure top-notch resistance to stress corrosion. All five, of course, have the excellent general corrosion resistance of copper reinforced by a 5% nickel 5% tin content.

Helpful booklet gives complete information on Ni-Vee bronzes

"Engineering Properties and Applications of Ni-Vee Bronzes" covers tables of composition, charts on deformation, friction, fatigue, elevated temperature service, electrical resistivity, wear and other engineering data. Write for your copy today.

*Registered trademark

THE INTERNATIONAL NICKEL COMPANY, INC.
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NI-VEE BRONZES
NICKEL ALLOYS PERFORM BETTER LONGER

Steel Prices and Inflation

For many weeks, the editors of this magazine have been predicting that higher steel prices would inevitably follow the higher wage costs that became effective July 1.

Since Jan. 1, wages have gone up 25 to 30 cents an hour. Increases in base pay, shift premiums, Sunday and holiday pay account for about 15 cents; the rapid rise in the consumer price index accounts for 10 cents; and incentive bonuses account for as much as 5 cents.

Direct labor costs on the basis of 20 manhours per ton of steel produced have increased $5 to $6 a ton. Indirect costs, based on experience, have increased as much as the direct cost of labor.

We believe that the steel industry had no alternative but to recapture part of its added costs if it hopes to maintain a strong basic industry as the foundation for economic growth and national defense.

But the increase does revitalize issues that must be faced.

Trust Buster Victor R. Hansen of the Department of Justice says he's giving "extremely close scrutiny" to the fact that steel companies "marched up the hill together in raising prices."

Senator Kefauver asks why identical prices are put into effect at the same time although each company has different costs.

Labor says the steel industry can absorb higher labor costs because of increasing productivity.

These charges can be answered, but answering a more serious one (that steel is contributing to a new inflationary spiral) will not be so easy.

The long term contracts signed by steel and labor in 1956 (and earlier by the auto industry) had the advantage of assuring labor peace for more than a year but the disadvantage of having built-in inflation factors that function whether business is good or bad.

The worst disadvantage of all is the wage escalator tied to the admittedly obsolete consumer price index. It has contributed to a 17-cent wage increase since the wage contract was signed.

In signing new labor contracts, both management and labor need to take a new look at terms that may be committing our economy to ever-rising wages and prices.

There is an alternative: Government controls.

Irwin H. Such
EDITOR-IN-CHIEF

FABRICATION WON'T FLAKE TI-CO EITHER

A jai-alai ball travels at speeds over 100 m.p.h.—hits with terrific impact. From a distance of only 60 feet, one of Mexico's leading jai-alai players, Jose Fuerto, slammed the ball into a TI-CO Galvanized Sheet again and again—severely pounding it—but there wasn't a sign of flaking!

In your manufacturing operations, TI-CO can be deep drawn, stamped, bent, crimped, lock-seamed, even spin-drawn, without flaking or peeling. In fact, any product that can be made from cold rolled steel can be made from TI-CO, giving your product dependable protection against corrosion and an eye-appealing finish that can mean stepped-up saleability.

If you are designing or manufacturing a metal product that requires rugged strength plus corrosion resistance, you'll find TI-CO Galvanized Sheets the practical and economical solution. Coils or cut lengths up to 60" widths; gages 8 to 30 inclusive. Consult your local steel distributor or Inland representative. Write today for a free, informative booklet on TI-CO.

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What the Steel Price Rise Adds to Cost of an Item

	Added cost of Steel only	Added cost as % of selling price
$212 electric motor (5 hp, ac)	$0.36	0.17
$500 refrigerator	0.65	0.13
$3000 automobile	8.00	0.27
$4500 lift truck	25.00	0.55
$18,000 house	18.00	0.10
$23,000 screw machine	16.00	0.07

Steel Prices: What They Mean to You

Consumers are going to absorb much of the ferrous price hike, but it's not going to be easy. Senator Kefauver is threatening price and wage controls and legal action

STEEL CONSUMERS aren't applauding higher prices, but they're accepting them.

They admit that the industry has a good case: Half a dozen steelmakers lost money during the first half. Failure to raise prices after the July 1 boost in wage rates would have compounded the losses.

Consumers' Dilemma — Although they regard the $4.50-a-ton hike as moderate (STEEL predicted $4 to $6 on May 12), consumers will have a hard time absorbing it. Their profits have been steadily eroded since the recession began. Competition has been so keen that many have had to cut their prices in the face of steadily rising costs. (Look for iron ore prices to be increased at the end of the 1958 shipping season. They weren't revised in '57.

In spite of the profit squeeze, steel users will tighten their belts another notch. An Indiana partmaker put it this way: "If we raise our prices 4 per cent (enough to pass along higher steel costs), we'll lose out to some competitor who holds the line—and plenty of them will."

How They'll React—Consumers will absorb, at least temporarily, a greater percentage of the ferrous price increase than they have in any previous postwar period, a STEEL survey indicates (July 14, p. 61). Capital goods makers interviewed say they'll absorb about 90 per cent; manufacturers of consumer durables will also absorb 90 per cent. Makers of components say they'll be able to absorb only 60 per cent, while makers of construction equipment report plans to absorb about 75 per cent.

Those are arithmetical averages. Respondents' answers varied greatly. Even direct competitors give diametric answers. One maker of wire shapes says he'll pass along the entire increase; another says he won't pass any of it on. Basic pricing policies explain the variations. Some companies intend to sell quality, but most believe keen price competition is the major factor.

Considering consumers' pass-along plans, it might be argued that Sen. Estes Kefauver (D., Tenn.) is barking up the wrong tree. He's barking too loud, perhaps, but there's no denying that the increases will be inflationary. Most partmakers will raise their prices as soon as business conditions permit. Manufacturers will have to pay more for steel components, and the markups will pyramid. Labor costs will rise faster than productivity in many industries that follow the steel wage pattern. By mid-1959, a 2 or 3 per cent advance may be seen in the consumer price index.

Who's Responsible?—Steelmakers

concede that the time wasn't right for an increase, but argue that they had no choice. Their employment costs rose about 25 cents per man-hour on July 1 (when workers received wage increases guaranteed by contract). It takes about 20 hours to make a ton of steel, so $5 was added to the cost of every ton produced. Industry earnings were unsatisfactory before wages went up (several companies lost more than $1 million during the first half), and it was obvious that something had to be done. July 1 was the logical time for a price hike, and U. S. Steel Corp. was expected to lead. But late in June, Clifford F. Hood, Big Steel's president, made it fairly clear that it would do nothing on July 1: The only thing we have decided to date, he said, "is not to attempt to change our prices until the situation clarifies itself."

Why U. S. Steel Delayed—Mr. Hood declared that price action would hinge on "competitive conditions in the steel industry, competition with other materials, underlying customer product demand, and the economic climate and outlook together with other factors." U. S. Steel also didn't relish spending the time and money to again explain to Senator Kefauver and his committee how the steel industry operates.

Why Armco Acted—So U. S. Steel waited. Armco Steel Corp. took the initiative on July 29, raising its sheet and strip prices an average of $4.50 a ton, effective July 31.

Noting that Armco's announcement came only 2 hours after Roger M. Blough, chairman of U. S. Steel, said his company "had nothing in mind" on prices, some observers suggest that Armco acted in desperation, realizing it couldn't outwait the corporation. Logan T. Johnston, Armco's executive vice president denies it. "We had made up our minds to raise prices before Mr. Blough's statement. As a matter of fact, we weren't aware that he had said anything on the subject prior to our announcement.

"The impact of the wage increase granted in connection with our three-year contract convinced us that we had to raise our prices. By the end of July we knew our tonnage for the month, and we had a pretty good idea what August and September would be like. Knowing what our increased labor costs would be, we made a projection for the third quarter. It didn't look good, and we saw that we had to have higher prices."

By July 31, some of the misgivings that steelmakers felt earlier in the month about raising prices had been dissipated. There was an element of risk in a July 1 announcement, when it seemed that shipments might drop to the year's lowest level. If that had happened immediately after a price hike, Senator Kefauver would have shouted "I told you so."

On Wednesday, July 30, Republic Steel Corp. met Armco's prices. Later in the day, Jones & Laughlin Steel Corp. and National Steel Corp. took like action. U S. Steel waited until Thursday, July 31, to announce comparable increases. In the next ten days, much of the industry followed, to boost across the board except for tin plate and stainless.

Price Restraint—Armco estimated its price increase at 2.75 per cent on the products affected, compared with an employment cost increase of 6.75 per cent. U. S. Steel boosted prices about 3 per cent and said that its employment costs had jumped 5.5 per cent. Unless there's a substantial improvement in shipments during the second half, steelmakers won't be able to maintain their first quarter earnings (5 cents on the sales dollar). The $4.50-a-ton increases will barely cover the higher labor costs, to say nothing of purchased goods and services. By the first quarter of next year, the $5-a-ton labor increase will have a $10 impact on the cost of making steel.

The Scapegoat—Senator Kefauver has indicated that he'll hold U. S. Steel responsible for the price increases even though it didn't initiate them. Odds are that he'll invite industry and union officials to testify before his Antitrust & Monopoly Subcommittee but not until after Congress adjourns (probably Aug. 16).

Victor R. Hansen, assistant attorney general in charge of the Antitrust Division, has already testified before the subcommittee. He said that the Justice Department is "closely studying recent price increases in the steel industry to determine whether they are the result of a conspiracy to fix prices or are an indication of monopoly control over the industry."

He added that the department as yet had reached no conclusions, but that if evidence is found indicating violations of antitrust laws "we

Steel Product Price Increases at a Glance

	Base Price Per Net Ton Old	New
Hot-rolled sheets	$98.50	$102.00
Cold-rolled sheets	121.00	125.50
Galvanized sheets	132.00	137.50
Hot-rolled strip	98.50	102.00
Cold-rolled strip	143.00	148.50
Hot-rolled carbon bars	108.50	113.50
Reinforcing bars	108.50	113.50
Cold-finished bars	146.00	153.00
Hot-rolled wire rods	123.00	128.00
Manufacturers' drawn wire	153.00	160.00
Plates	102.00	106.00
Structurals	106.00	111.00

Steel's Wage & Price Record

Year	Average Base Price Increases	Increase in Total Hourly Employment Costs
1958	$4.50	$0.250
1957	6.00	0.262
1956	8.50	0.232
1955	7.35	0.210
1954	3.00	0.072
1953	4.00	0.125
1952	5.20	0.201
1951	X	0.206
1950	5.50	0.155
1949	4.00	0.074
1943	9.35	0.116

X Korean War price controls and court-contested steel strike delayed price action until 1952.

shall, of course, move appropriately." Mr. Hansen said the agency is giving "extremely close scrutiny to the fact that steel companies march up the hill together in raising prices."

John W. Gwynne, chairman of the Federal Trade Commission, also testified before the subcommittee and said that his agency "has never found a violation of a 1951 cease and desist order against steel companies involving conspiracy to fix prices."

Mr. Gwynne told the antitrust group that the FTC "has looked over the record of the Senate panel's previous hearings and the consensus is that nothing you've turned up warrants FTC action."

He stressed the fact that while his agency is concerned over the inflationary aspects of the steel price increase, its sole authority is to enforce antitrust laws.

Automakers' Reaction—The automotive companies are resigned to paying more for steel. They expected it this year and priced their cars accordingly. They can absorb higher steel prices as they wind up production of the '58s, but they can't absorb higher costs of steel, labor, and purchased goods and services. They may not raise prices on all of next year's models, but they'll go up on the high volume lines.

Automakers say the outcome of their labor negotiations will have much more effect on new car prices than the cost of steel. The raw materials required for a standard sedan (without accessories) of the Ford-Chevrolet-Plymouth class cost about $800. The added expense of steel used in such a car will be about $8, or about 1 per cent of the total material cost.

The average hourly employment cost per worker (including fringe benefits) is $2.90. If the automakers get the best settlement imaginable (a straight contract extension), annual improvement and cost-of-living factors will add 9 cents to hourly employment costs. Any productivity gains will be offset by inflation. Labor's going up at least 3 per cent.

Another Facet—Oil companies, it is estimated, will pay about $27 million more for steel goods during the next 12 months as the $4.50 increase becomes general.

British Recession Deepens

Inventory reduction is also giving British steelmakers headaches. It's singled out as the reason why steel production in the second quarter ran about 10 per cent under last year's. (Production in June was about 373,600 tons.)

Sheet and plate makers are working at capacity to supply auto and shipbuilders, but over-all first half production of steel (10.5 million tons) is 5.5 per cent under that of 1957's first half. During the first five months, domestic deliveries fell 3 per cent, exports 13 per cent. A partial explanation for the decrease in exports: British automakers are taking sheets which otherwise would have been exported.

Vacations are idling most plants for two weeks (the last in July and the first in August).

Unemployment is at its highest peak in several years. In the steel industry, 9000 workers are registered as idle, vs. 3000 a year ago.

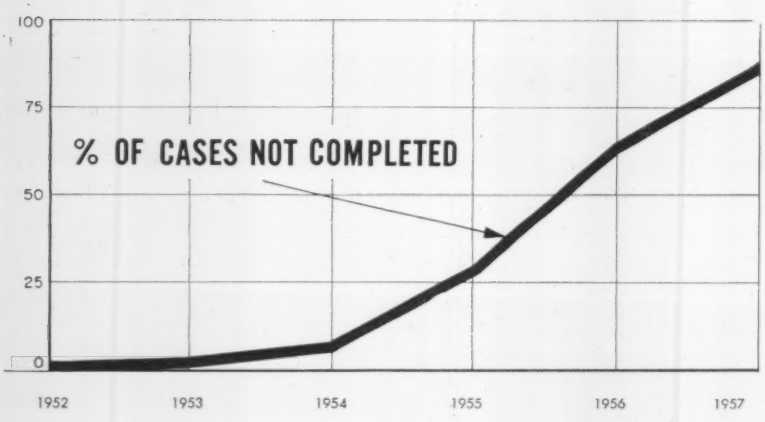
Frederic H. Chapin Dies

Frederic H. Chapin, 83, chairman of the board of National Acme Co. and Ohio Machine & Forge Corp. died at his Cleveland home Aug. 5.

Mr. Chapin was president of National Acme from 1926 until he was elected board chairman in 1957. He was also a director of White Motor Co., Oliver Corp., and Eaton Mfg. Co.

What's Wrong with Renegotiation:

1. The board is years behind in its findings.



Source: Renegotiation Board.

2. It's killing the incentive to cut costs.

Company	Incentive Earnings	Renegotiation Refund to U. S.
Boeing Airplane Co.	$11 million	All but $3 million.
Grumman Aircraft Engr. Corp.	4 million	All, plus $2 million of basic earnings.
Lockheed Aircraft Corp.	4 million	All, plus $2 million of basic earnings.
North American Aviation Inc.	7 million	All but $1 million.

Examples occurred in 1953. Source: Aircraft Industries Association.

3. It's a headache for basically nondefense industries.

Preparation of information to file for exemption under the Renegotiation Act costs literally thousands of dollars, and at best it's based on estimates.
—*American Steel Warehouse Association.*

4. It discourages small firms from doing defensework.

Says Rep. William Hill (R., Colo.): Exemption from renegotiation should be granted firms doing up to $5 million worth of government business a year, instead of $1 million. "The only value of renegotiation is in its application to the hundred or so largest military contractors that traditionally serve as sole source suppliers on complex items. For all other companies, where competition is present, renegotiation serves little purpose other than to increase the burdens of accounting and administration. Only the most meager portion of dollars recaptured come from other than the top 100 defense contracting firms."

Needed:

DO FIVE MEN determine the progress of our national defense? "Yes," if you listen to William Allen, president, Boeing Airplane Co. "No," if you believe Thomas Coggeshall, chairman of the Renegotiation Board.

A Matter of Judgment—Mr. Coggeshall heads a five-man group in Washington that decides what profits earned on government business are "excessive" and orders their return to the U. S. Treasury. If you do $1 million worth of business with Uncle Sam a year, you're subject to the Renegotiation Act.

Mr. Allen contends the way the act is being administered is "contrary to the intentions of Congress" and is "harmful to the national defense." Testifying before the House Ways & Means Committee as the spokesman for the Aircraft Industries Association, he championed a proposal which would permit defense contractors to keep profits gained through increased efficiency.

Many defense contracts contain an "incentive" clause, which allows contractors to keep 20 per cent of the profits they gain by underrunning target cost; 80 per cent is returned to Uncle Sam. But, said Mr. Allen, the Renegotiation Board is reclaiming those incentive profits. On B-47 and C-97 orders in 1952-54, he reported, Boeing earned $25 million (before taxes) in incentive profits but was told to return $27.5 million (before taxes) to the government. Boeing reduced the cost of the B-47 from $2.5 million each on the first order to $1.1 million each by the time of the third follow-on contract. Profits per pound of the aircraft dropped from $2.26 to $1.73, while labor, engineering, and material costs rose.

Government Equipment — Without profits, concluded Mr. Allen, the industry cannot enlarge its research and development facilities (for national defense) or entice investment capital; it must depend on defense research contracts and government-furnished equipment. In the case of jet tankers, Pentagon money wasn't available, Mr. Allen pointed out, so Boeing spent $16 million of its own money for devel-

Changes in Renegotiation Laws

opment before it got a defense contract. The industry generally plows back 60 per cent of its earnings (vs. the national manufacturing average of 40 per cent).

Not Only Aircraft—Others testifying against the Renegotiation Act: American Steel Warehouse Association, Electrical Equipment Representatives Association, Machinery & Allied Products Institute, National Association of Manufacturers, and U. S. Chamber of Commerce.

On the day of the committee hearings, identical bills were introduced into both houses of Congress amending the act to eliminate from renegotiation: 1. Fixed price or incentive contracts subject to price redetermination or revision clauses. 2. Contracts awarded after competitive bidding by three firms (at the contractor's option). The bills were deemed advantageous to small business.

They have little chance of acceptance by this Congress but give a clue to what may be done by the next. Action in 1959 will probably be imperative because Ways & Means last week voted to extend the present Renegotiation Act for a mere six months, a proposal likely to be O.K.'d by the full Congress. The committee believes that time is too short to enact complete reform in this Congress.

Explaining the headaches renegotiation causes, Charles Stewart, MAPI president, cited this extreme example: A "commercial capital goods maker," not directly involved in the defense effort, is still appealing a board decision demanding the return of profits earned in 1952. The 237-employee firm has spent 130 weeks of executive time and $37,000 to process the case so far.

To determine what is exempt from renegotiation, a steel service center must carry a heavy load of paperwork to record end uses of its sales, Robert Welch, executive vice president, ASWA, told the committee. Warehouses buy in tonnage lots, sell in amounts averaging about 800 lb; Mr. Welch believes competition in his industry demonstrates that excessive profits are not being made. He suggested the act he revised to recognize that.

F. M. Ballou spoke in behalf of manufacturers' representatives. An individual is subject to renegotiation if he earns more than $25,000 a year from government contracts. Mr. Ballou wants the floor raised to $100,000 and only earnings over that amount to be subject to the act, rather than all earnings.

The Pentagon's Position—Robert Dechert, the Defense Department's general counsel, stood his ground in the face of the attack. Noting that President Eisenhower had requested extension of the act, he added: "Only renegotiation can be fully effective to assure the government gets what it needs for defense without paying excessive profits." Where renegotiation must continue to operate, he believes, is in complex weapons where cost experience is lacking. Defense Secretary Neil McElroy reported spending subject to renegotiation rose from $18 billion in fiscal 1957 to $19 billion in fiscal 1958.

Mr. Coggeshall commented: "The mere existence of the renegotiation authority frequently induces contractors to price more closely than they otherwise would." He denied, upon questioning by Rep. Richard Simpson (R., Pa.), that the act is an "economic whip," forcing business to toe the Pentagon's line.

Rep. Noah Mason's (R., Ill.) contention that renegotiation allows for "careless" contracting procedures was backed up by Mr. Stewart: "Congress will not get a completely streamlined procurement system as long as it is on the books." It's a "crutch" for the Pentagon, added an NAM spokesman.

What's Ahead?—Rep. Thomas Curtis (R., Mo.) thought Defense could easily certify in the contract itself whether renegotiation was required, rather than putting a firm's whole government business under the act's jurisdiction. He added that renegotiation goes on every day in private business between buyer and seller, but that the Renegotiation Board is a third party, which "second guesses" the Pentagon. Mr. Allen reported the board's local people in California (there are three regional boards—Los Angeles, Detroit, and New York—besides the Washington group) had cleared Boeing on one contract, but the Washington board asked for a return of $10 million. That, he said, is an example of a third party's lack of experience with a particular industry. Mr. Stewart thought it was more a matter of arbitrariness or capriciousness on the board's part.

Mr. Coggeshall claimed impartiality, but produced figures showing the aircraft industry to have the second highest return on net worth of any industry in the country (20.4 per cent, vs. a national average of 13 per cent). Representative Curtis thought one of the board's "guidelines" should be the fact that the industry needed more private capital: If it doesn't get it, "we'll have more and more government financing, and talk of savings by renegotiation to the taxpayer will be just so much talk."

Rebuttal—Trying to find a middle ground, Rep. Cecil King (D., Calif.) asked that the board's findings be made subject to appellate court review as well as tax court review (which today is the final authority on board decisions, except on constitutional or jurisdictional grounds). He also urged renegotiation be put under the Administrative Procedure Act, which would make board hearings a matter of public record, and require courtroom procedures.

Mr. Coggeshall, giving some ground on technical matters like Representative King's proposals, claimed cost estimates of defense business would continue to be unsound and incentive profits the result of "windfalls because of an unexpected decrease in costs which were perhaps originally overstated." As an authority for his views, Mr. Coggeshall turned to Rep. Carl Vinson (D., Ga.), chairman of the Armed Services Committee, whom he reported as believing renegotiation is needed more today than in 1951 when the act was passed.

Arguing that a review of all profit-limiting legislation is needed, Mr. Stewart summed up industry's

argument: It is an act in which "no one believes in principle"; the board's rulings cannot be "diagnosed or reviewed." It is symptomatic of profit control which is "creeping into" our economy more and more.

And Representative Mills?—In a legislative system almost dominated by the committee system, industry must take its lead from the committee chairman. So listen to Rep. Wilbur Mills (D., Ark.), chairman of the Ways & Means Committee: There is some occasion for renegotiation when we spend $40 billion a year on defense; "the problem is to draw a line and continue it without impeding the national defense."

As with the hope for better depreciation laws, industry will be watching Representative Mills in 1959.

TMCA Makes Foreign Tie

Titanium Metals Corp. of America joined with Germany's Deutsch Edelstahlwerke to form a new company: Continental Titanium Metals Corp. It will pioneer mill products for distribution solely to civilian industries, with emphasis on petrochemicals and chemical processing uses.

Besides grabbing a chunk of the European market, TMCA hopes to cash in by obtaining technical and marketing information that will aid in expansion of civilian uses for titanium in the U. S. Most U. S. talent and resources have been oriented toward the aircraft industry, claims TMCA.

Brazilian Plant Expands

Acos Villares S. A., Sao Paulo, one of Brazil's largest producers of special alloy steels, has signed a credit agreement with the Export-Import Bank in Washington for $1.7 million.

The money (and more from European and Brazilian sources) is to be used to finance an expansion program calling for the purchase of about $3 million worth of machinery from the U. S. and Europe. The firm wants to buy rolling mill, forging, and foundry machinery and equipment in the U. S. Most purchases will be for delivery before the end of the year.

How Hard Are You Selling?

1. Have you increased your sales force this year?
2. Have you introduced any new products?
3. Are salesmen averaging six or more calls daily?
4. Have you increased help to the salesmen with sales aids, direct mail, and advertising programs?
5. What have you done to assist independent distributors?
6. How have you improved customer service?
7. Have you considered territory changes or realignment of your sales organization to gain strength?
8. Where possible, are salesmen doing most of their traveling after 6 p.m.?
9. Have you found ways to help your customers sell their products?
10. How have you increased the salesman's incentive to keep bucking today's tougher odds?

Needed: Hard-Time Selling

Cost cutting is still a major antirecession tool. But if you can't answer yes to most questions in the checklist, you're behind the more aggressive metalworkers

METALWORKING'S hard sell attitude is tersely pinpointed by an eastern executive: "Fifteen months ago, our plant workers averaged 48 hours a week while management coasted at about 36. Today, our management is working 50 hours (often more) and workers 36."

When the recession hit its worst depths during the last months of 1957, management first turned its attention to production costs. Cost cutting is still a major activity, and a second front (sales) has been opened up. The object: How to get the most from salesmen.

Don't Cut Back—One good way not to get maximum production from sales personnel is to decrease their number.

National Acme Co. increased its sales force by 10 per cent. It eliminated paperwork by furnishing each salesman with portable dictating equipment. After each call, a report is dictated before the salesman

leaves the parking lot. At night, the disc is mailed to the home office. Results: Territory coverage has been doubled and per-call costs have been cut 24 per cent.

Says A. F. Golick, sales vice president, La Salle Steel Co.: "You can't repeal the law of averages. The more calls a salesman makes, the more sales he'll get. We're encouraging salesmen to budget their time so they can make that extra call or two per day."

Most firms queried by STEEL report their men are averaging five to eight calls daily—two more than last year.

What To Sell—The most important thing to a customer is not who's selling but what he's buying. If your product is moving slowly, investigate a new one.

National Acme developed a machine to mill, slot, drill, and tap a carburetor part. Savings amounted to $1.90 per carburetor. To stay competitive, every firm making carburetors needed the machine. National Acme sold 16.

A. M. Byers Co., Pittsburgh, introduced 4D wrought iron this spring with the biggest campaign it had ever undertaken. Last fall, alloy and stainless steel specialties were added to its carbon steel line. Profits in the second quarter hit $280,050 on $6.8 million sales, vs. $39,950 on equal sales a year ago.

Make Them Want To — It's one thing to give salesmen a pep talk about making more calls and it's still another to see that they do it. They will if it's worth their while.

Many makers of industrial products are following producers of consumer goods in the use of contests and incentive programs. Clark Equipment Co.'s Industrial Truck Div. last fall sponsored a Miami-Cuba vacation trip contest. Result: The highest December sales in its history.

Part of Operation Spark at the Data Processing Div., International Business Machines Corp., is a personal recognition program. A "salesman of the week" is selected from each district and region. Winners get prizes and write-ups in the company's house organ, relates Robert Hubner, sales manager.

Bonuses also help morale.

Pamper Distributors — Independent distributors are being hurt by the recession, too. The companies making profits are the ones that haven't forgotten them.

Gibson Refrigerator Co., whose first half appliance sales were 16 per cent ahead of 1957's, finds a twist on the radio telephone quiz successful. Each week material is mailed to distributors. (It might include product, company, or general industry information.) A distributor is called (his name is pulled from a hat) and asked a question based on the material. If he has read it, he will win a prize easily.

Improved customer service is another good weapon. Rockwell Mfg. Co. holds 2-hour customer seminars on valve maintenance for chemical and refining plants. It's a low-pressure technique, but officials report they're pushing it harder than ever.

T. L. Strimple, National Acme president, says expanding engineering service is another aid. Sales engineers assist customers with handling problems and allied operations (such as flame hardening, in connection with screw machine operations).

Steiner Co., Chicago, which makes towel cabinets, and soap and toilet paper dispensers, helped itself by helping a customer. Clean Linen Service Co., Birmingham, started a sales contest. Steiner joined in. It prepared literature and sent out its salesmen with Clean Linen's to make suggestions and to help clinch orders.

Sylvania Electronics Tubes Div., Sylvania Electric Products Inc., sells to distributors, but this year will contact 25,000 dealers in an effort to better its tube renewal market.

And Still Others—La Salle's Mr. Golick believes that territory shifts also can help stimulate business. "A salesman sometimes gets into a rut working the same area for many years. New faces and challenges can often rejuvenate him. We've found too that a new man in a territory will invariably come up with several new accounts, no matter how effective his predecessor was."

A form of self-help is applied at La Salle. Salesmen assist each other by reporting case histories of how customers were helped by using the company's products. The material is co-ordinated and distributed by the main office.

Some metalworkers are emphasizing quality rather than quantity in calls. DoAll Co., Des Plaines, Ill., finds its "Headliner" programs are paying off. It takes a single product and puts on a special push for 30, 60, or 90 days.

"We develop presentations for salesmen," explains L. R. Rothenberger, vice president. "We tie in direct mail and advertising programs to provide additional impetus." In one 60-day campaign this spring, DoAll's sales in the Cincinnati territory were boosted 35 per cent over the previous six-month average.

Don't Panic—Sales come harder during hard times, but they can be had with intelligent planning. Don't cut salesmen's salaries if it can be avoided. It's a morale killer.

STEEL's survey indicates that only a few firms have cut salaries of sales personnel. Only a third have reduced sales forces; an equal percentage have increased them. The same trend is true in expense allowances and advertising and promotion outlays.

• An extra copy of this article is available until supply is exhausted. Write Editorial Service, STEEL, Penton Bldg., Cleveland 13, Ohio.

More Permit Panel Walls

Modern metal curtain wall building construction is gaining wide acceptance in cities over the country.

Of 100 cities surveyed by the American Iron & Steel Institute, 78 either permit panel type construction or are considering building code amendments to permit it.

The future use of thin, lightweight panels to enclose buildings was retarded for some time by outmoded building codes which dictated the kind and thickness of material to be used instead of specifying standards of performance.

Widely recognized codes such as the Basic Building Code, the National Building Code, the Southern Standard Building Code, the Uniform Building Code, and the Standards of the National Fire Protection Association contain up-to-date provisions.

In general, those codes specify noncombustible construction instead of masonry or concrete, and vary the fire resistance requirements according to the distance between the building and any possible fire exposure rather than specifying an arbitrary minimum of fire resistance.

HUGH LITTLE

How Missile Contracts Are Landed

AT LEAST one of the consultants scurrying around Washington these days for missile business is having success. He's Hugh Little, ex-vice president of Westinghouse Air Brake Co. and now Ohio chairman of the Association of Missile & Rocket Industries.

His secret: "I've never been known to take an admiral or general to lunch. About 25 people in the Pentagon handle 98 per cent of the bids for missilework, and they're not the brass." Mr. Little believes in the old fashioned philosophy of knocking on doors until he meets the right man.

He doesn't confine his activities to the Washington rat race either: "I take swings around the country to learn what major contractors and subcontractors are looking for. Chances are I'll have a vender or subsubcontractor in mind when I approach a big outfit, but I have to be ready to fit its needs exactly. I let the job decide the supplier, not vice versa."

New Buying Techniques Used

Mr. Little says an interesting situation develops in some firms after a contract is landed: The usual purchasing routes are bypassed. One man in a medium-sized company may buy all materials for missilework, and he most likely will not carry a purchasing agent's title. "You have to get inside a company to discover the right man." Salesmen planning missilework calls on their usual contacts will be disappointed; even the PA may not know who does the buying if the firm has an informal missile group within its formal structure.

Mr. Little represents a type you see more and more around Washington. With an engineering background and the interest to keep up with the times, he is applying salesmanship to the missile field. It's apparently working out for all concerned: The Pentagon, the prime contractor, and the subcontractor or supplier. Men like Mr. Little bring knowledge about a company's capabilities to the attention of the right person and end up handing over a contract on a silver platter. They also provide information about developments. If XYZ Inc.'s new process might fit a particular problem, chances are it will be a private consultant who brings it to the Defense Department's attention. They also are quick to hear of any bottlenecks. Mr. Little tells of the airframemaker who needed a bellows job quickly; the only company the prime contractor knew that could do the work had turned it down. A query to Mr. Little turned up another capable firm, although it hadn't even known about the contract.

They Tie Up Loose Ends

The missile business seems to demand the talents of these consultants. On Capitol Hill, you hear constant complaints of constituents who are unable to learn exactly what's going on in missiles and where they can fit in. Better procurement procedures probably aren't the answer because developments are coming so fast that no mere organization can keep up with them: It takes these men who live missilework and who can, by the nature of their job, move around the country fast. They seem to be the fellows who are literally picking up the loose ends of our missile program. Eventually, the business will settle down, and the routine of purchasing and contracting will be as simple as it is in any other metalworking business. Today, it's the most exciting game on earth, says Mr. Little.

It takes "hard work and plenty of guts," he concludes, but the rewards are great. Production opportunities are limited now, but they will come for the firm willing to risk enough at first. How do you get on the inside of the business? By sticking close to the manufacturing leaders in missiles: They know about developments before the services do, Mr. Little advises.

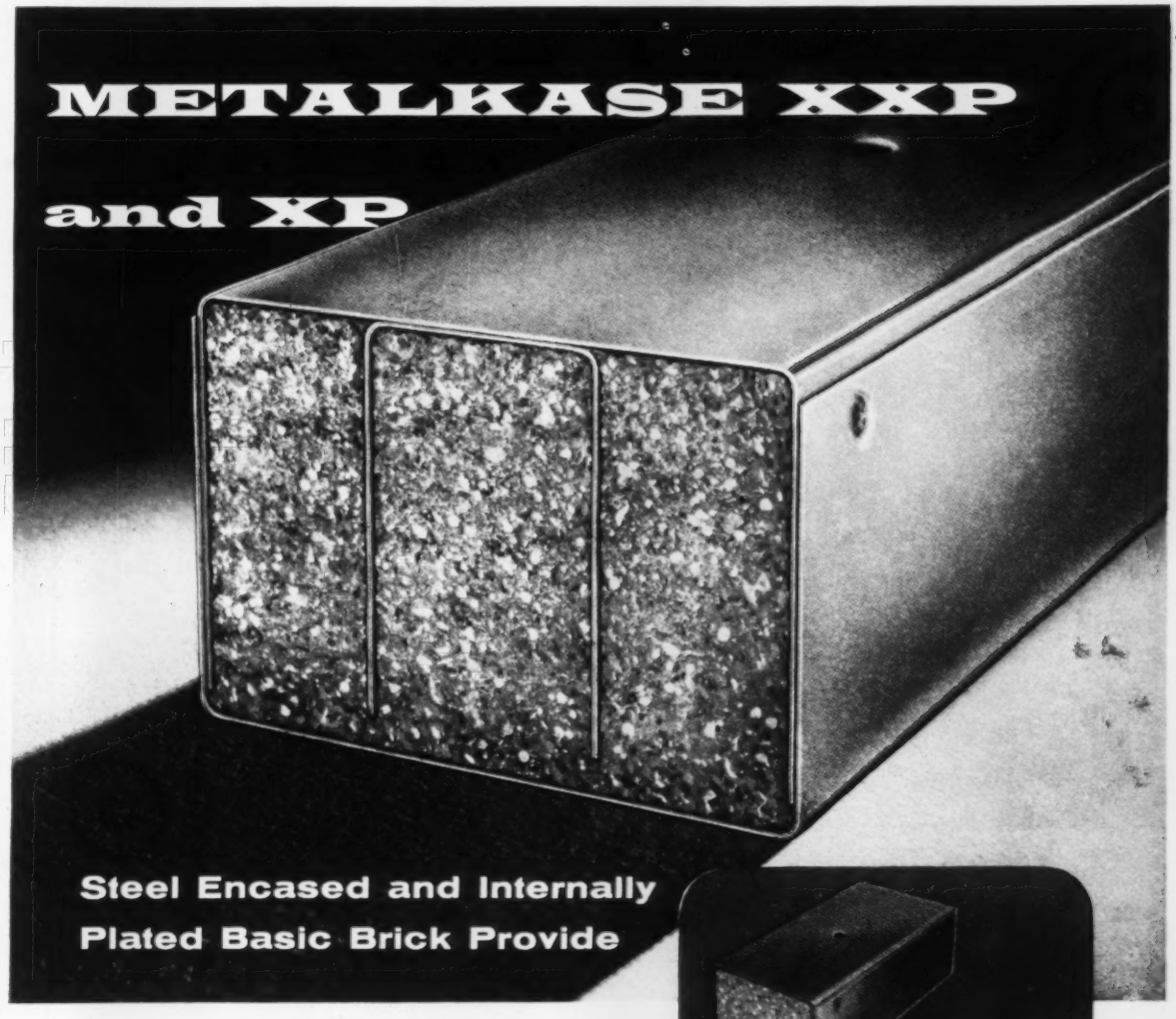
Uncle Sam Buys Russian Aluminum

Major U. S. aluminum producers told Commerce Secretary Sinclair Weeks: "The U. S. government recently purchased 1.25 million lb of aluminum plates on a competitive basis. The lowest bid, by a New York importer, was about 20 per cent below the average of all domestic bids. His source of supply is a Belgian mill which is a heavy purchaser of Russian aluminum. The U. S. government, nevertheless, awarded its order to this importer."

The aluminum producers have been making the rounds in Washington for several weeks with their complaints about Russian metal (STEEL, July 21, p. 77). The latest visit (last week) was to Interior Secretary Fred Seaton. Don't look for any formal action to come out of these conferences. Basically, the aluminum firms want Uncle Sam to concentrate on new markets abroad via the foreign development route, rather than formal restrictions on imports and tariffs.

HARBISON-WALKER

METALKASE XXP and XP



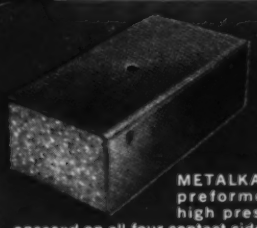
Steel Encased and Internally Plated Basic Brick Provide

- **greater spalling resistance**
- **reduced peeling tendency**

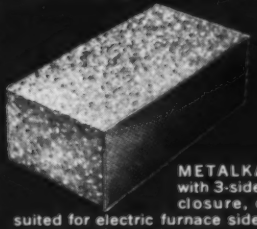
METALKASE XXP are chemically bonded basic brick with two internal plates, formed under high pressure, and are furnished in standard sizes, suspended arch and other shapes. They are available in various compositions. In the illustration the METALKASE XXP brick is cut to show the plated construction. These plates extend through the length of the brick.

METALKASE XP brick, having a single internal plate, are made in hard fired basic brick of various classes. They are available in standard sizes and many special shapes. These brick are used in various particular applications with great benefit.

Extensive use in both steel and various non-ferrous metallurgical furnaces clearly demonstrates the superior spalling resistance of the internally plated brick, and as the result of improved stress relief, appreciably reduced tendency to peel.



METALKASE brick, preformed under high pressure and encased on all four contact sides by welding, in 22 gauge steel.



METALKASE brick with 3-sided steel enclosure, especially suited for electric furnace side walls and other specific applications.

Other Metalkase designs

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AND SUBSIDIARIES

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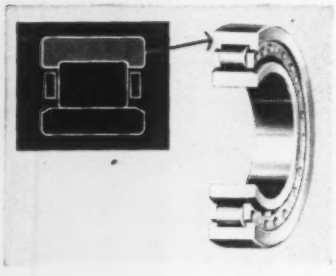


TWO-LIP RACE INCREASES RIGIDITY

Two parallel shoulders made integral with the outer race, as shown in gray above, increase rigidity and durability—keep rollers in proper alignment. Precision-ground rollers and races give quieter, smoother operation.

Tossing around logs 6 feet in diameter like toothpicks is no job for a softie! This machine has to be *built* for it right from the start—*right down to the bearings.* And that goes, too, for the trucks which haul these back-breaking giants over the most rugged terrain. Bower tapered and straight roller bearings have been *engineered* for just such work as this—to last longer, perform better under any road or load condition. Painstaking quality control plus basic bearing design refinements—like those shown at left—have reduced Bower Bearing failure to a practical minimum. *Whatever* your product, if it uses bearings, specify Bower! There's a complete line of tapered, straight and journal roller bearings for every field of transportation and industry.

BOWER ROLLER BEARING DIVISION
FEDERAL-MOGUL-BOWER BEARINGS, INC. • DETROIT 14, MICHIGAN

BOWER ROLLER BEARINGS

Scientific Apparatus Sales*

(Millions of dollars)

1958 . .	$300**
1957 . .	330
1956 . .	281
1955 . .	232
1954 . .	203
1953 . .	212

*Sales by laboratory apparatus, optical, and industrial instrument sections of the SAMA. **Estimated by STEEL.

Boonton Radio Corp. made this device to measure structure of human and animal tissue

Scientific Apparatus Down

Slowdown in capital spending is blamed for 10 per cent decrease in sales, but help is coming from two sources: Increases in defense and school outlays

REDUCED capital expenditures this year are expected to cause sales of scientific apparatus to drop about 10 per cent under 1957 levels, but the performance should still be the second best in the industry's history. Experts anticipate a 5 to 10 per cent recovery in 1959.

Estimates are that sales of laboratory apparatus and optical and industrial instruments will reach about $300 million in 1958, vs. the record $330 million sold last year by members of the Scientific Apparatus Makers Association.

And More — A second product group (for which sales statistics are unavailable) includes recorder-controllers, laboratory furniture, nautical and aeronautical instruments, and products made by nonmembers of SAMA.

Sales of laboratory equipment (including furniture, benches, and hoods) are better than 10 per cent ahead of last year's, but those of recorder-controllers are behind expectations. The poor showing is blamed on the drop in capital expenditures which began last year and continued into this one. The outlook for relief in the form of increased capital spending is pessimistic.

What's Coming Up — Taking a look into the future, instrument makers are encouraged, says Kenneth Anderson, executive vice president of SAMA. Nuclear power, space stations, controlled weather, solar energy, and cures for "incurable" diseases all point to enlarged instrument markets.

"Perhaps one of the biggest jobs now is spelling out to the man on the street the value and practicality of basic science," Mr. Anderson continues. "We complain that only 8 per cent of all money spent for research and development goes for basic research (U. S. spending for R&D, including government outlay, is estimated to be about $10 billion annually). Yet few, if any, nontechnically trained people, including the legislators and executives asked to pass on such appropriations, really know what basic research is."

Some Help Coming—As one of the industries most vitally concerned with missile, antimissile, and satellite research and production, some sections of SAMA should profit from a geared up defense program later this year. (Outlay for basic missiles will approach $3 billion in 1958, with $3.44 billion forecast next year.)

Mr. Anderson also adds that executives will turn to laboratory control, research, and small business automation as ways of lowering high costs of production, marketing, and distribution.

Makers of apparatus and scientific optical goods also hope to benefit from appropriations for improving U. S. science teaching facilities, but this hinges on Congressional decisions on pending legislation. Funds allocated to the National Science Foundation to promote science education will mean some business for the industry.

Imports Hurt—Imports are still hurting manufacturers of laboratory apparatus and optical instruments. Says the Commerce Department: Imports of laboratory balances and analytical weights rose from $418,492 in 1956 to $599,935 in 1957. Imported microscopes jumped from $539,350 in 1956 to $748,173 the following year. Imports of other scientific, laboratory, and professional instruments jumped from $1,272,252 in 1956 to $2,243,622 last year.

Roundup — Makers of scientific apparatus (about 1600 companies) catalog some 22,000 products and more than 15,000 chemical compounds. Equipment sales in 1957 of SAMA members were: Laboratory apparatus, $195 million; optical instruments, $18 million, and industrial instruments, $117 million.

The Instrument Society of America is sponsoring its 13th annual Instrument-Automation Conference & Exhibit Sept. 15-19 in Philadelphia.

Preventive Maintenance: Three

Benefits from Scheduling

PROBLEM: A southwestern metalworker used nine vertical turret lathes to finish heavy steel forgings, a three-shift operation. Maintenance was strictly on a breakdown basis. No overhauls were planned; repair records were incomplete. Maintenance quality was secondary to speed.

SOLUTION: Management initiated a preventive maintenance program. The life expectancy of each major component was found by analyzing machine repair records. From that, this program was established: 1. Patrol inspections are made daily by the maintenance foreman. 2. Preventive maintenance inspections are made every 2000 hours. 3. Each machine is overhauled every 6000 hours. 4. Machines are rebuilt every 40,000 hours. 5. Lubrication is strictly scheduled.

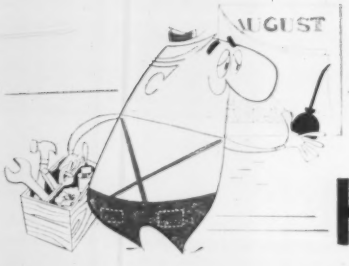
RESULTS: During the first six years, maintenance downtime was trimmed from 9 to 5 per cent of working time. Maintenance cost was slashed from $2.10 per machine hour to $1.48. Inventories of spare parts were cut one-third. More gains are in the making.

Gets Clean Oil Fast

PROBLEM: Mechanization and automation bring lubrication problems. Rapid-fire operation demands steady and thorough lubrication—often at hard-to-reach places.

SOLUTION: Ford Motor Co.'s Cleveland Engine Plant installed a central dispensing system. Both lubricating and hydraulic oils are carried from a central store to machines via overhead piping (underground lines were not used because they would pose a condensation problem).

RESULT: The system provides a rapid method of getting clean oil to the right place. It saves a "considerable amount" of labor and eliminates spillage. It directs the oil to places difficult for a man carrying a bucket to reach. A "counter" in each department shows the amount of oil used. It also gives forewarnings: If a department uses more oil than it should, the cause is immediately sought. Oil leaks and oil burning are caught in their infancy (as are any other causes of lubricant waste).



How To Make Maintenance

THE GENERAL MANAGER fumed. He had just learned that maintenance cost his plant $2.50 per machine hour—an excessive outlay at a time of low income. That plant, like many others, could brighten its profit picture through preventive maintenance.

Cost Cutter—Now is the time to initiate (or improve) your program. It should be a prime target in any cost cutting drive. Putting equipment in shape now is economical because downtime costs less when production is low. By upgrading your system now, your plant (and your maintenance program) can be in top shape when business improves.

Goal of preventive maintenance: Increased production at lower unit cost by minimizing downtime, improving equipment efficiency, and abating overtime work through planned application of men, materials, and tools. Mechanization and automation intensify the need for preventive maintenance.

Find the Problem—Do you know your present maintenance costs? Can you measure the profit lost by downtime, or through customer dissatisfaction with late deliveries? A supplier of automotive parts couldn't; it asked Trundle Consultants Inc., Cleveland, to study its setup. A report showed the plant had: 1. No central control to analyze, approve, and release maintenance requests. 2. No measure of performance on maintenance work. 3. No organized inspection of completed jobs. 4. No scheduled inspection of productive facilities. 5. No record of equipment location changes. 6. No effective schedule for maintenance work, and jobs were not analyzed before work began.

Such seat-of-the-pants maintenance resulted in erratic lubrication, ignorance of the condition of equipment (it was far worse than management realized), frequent production delays, and high costs. Maintenance men were on call to repair machines rather than on patrol to prevent repairs. A modern preventive maintenance program did the trick.

Where To Start—Preventive maintenance begins with the equipment manufacturer. He should use proper packing and shipping methods and assist the user with installation. An instrument maker puts photographs of proper unpacking procedures on the outside of shipping cartons. Some suppliers, like Reliance Electric & Engineering Co., Cleveland, and Vickers Inc., Detroit, run schools for customer maintenance men.

How To Start—George C. Bonnell, service manager, Machinery Hydraulics Div., Vickers Inc., tells how a southern metalworker started its program: "It accumulated reference data and service manuals on all machine tools and components. It set up a rigid inspection and lubrication schedule and standardized

Success Stories

Slashes Electronic Failures

PROBLEM: The growing use of electronic instruments and control equipment makes for expensive breakdowns due to electron tube failure.

SOLUTION: E. I. du Pont de Nemours & Co., Wilmington, Del., made a study of tube replacements. It found that a significant number fail during the first 200 hours of use (because of shorts, open heaters, and the like). It was conservatively estimated that 75 per cent of instrument failures during the first three months of use could be eliminated by stabilizing (aging) the tubes. A low cost rack was built to apply maximum rated plate voltage, current and dissipation, and filament voltages to 174 tubes at a time.

RESULTS: The failure rate on the rack ran 7 to 8 per cent. That means 70 out of 1000 tubes would have caused an instrument failure within 200 hours after installation had they not been rejected by stabilization. So downtime is reduced considerably and reliability improved markedly.

Productive . . .

lubricants. It recorded service, repair, and replacement history and kept accurate records of maintenance costs for each piece of equipment. Then it analyzed repetitive failures and set up long range equipment rebuilding schedules. Routine work was scheduled, and control over stores was established."

Results: 1. Repair downtime was trimmed from 9 to 3 per cent of scheduled hours. 2. Emergency work declined from 85 to 20 per cent of total manhours. 3. The Saturday work force was cut from 300 to 35 men. 4. Only 16 maintenance employees were added (total, 369) over six years despite the addition of 200 more machine tools (total, 800).

Keep Rolling—At Globe Union Inc., Milwaukee, a complete inspection of major equipment is made every month. Four weekly schedules stagger assignments. Smaller machines are inspected periodically, and a detailed service record is kept.

Tip — "Statistics show incorrect lubrication — not enough, too much, wrong kind—causes 60 per cent of equipment failures," reports a Ford Motor Co. spokesman. Ford uses coded insignia at each lube point to the oiler what lubricant to use and how often.

• *An extra copy of this article is available until supply is exhausted. Write: Editorial Service,* STEEL, *Penton Bldg., Cleveland 13, Ohio.*

5 Steps to 'Productive' Maintenance

1. Gather Data—Set up a card inventory of all equipment. Each card should list the machine's number, its description, application, rating, manufacturer, vender or agent, purchase order number, cost, and location. Index the cards.

2. Exclude Noncritical Items—You can "overmaintain." In some cases, it's more economical to replace or repair a part after it wears out rather than inspect it regularly. Such items (Example: An air conditioning motor) may not warrant being included in your program.

3. Set Up Control System—Work out an inspection schedule that strikes a balance between "too often" and "not often enough." Both extremes are costly. The repair record will tell whether more (or less) attention is needed. Written inspection reports go to the maintenance foreman. They will be analyzed to find material, labor, and time requirements for repair jobs. Manpower can be scheduled and parts requisitioned in advance.

Then set up your work order program for routine maintenance. For best results, tailor it carefully to your needs. (One plant trimmed emergency repair costs 23 per cent by redesigning its work order system—although it had appeared to be in good order.)

Keep records of all repairs. They'll serve as a guide in budgeting maintenance costs, in determining when equipment should be replaced, in figuring kind and amount of materials to stock, in finding design weaknesses, and in evaluating the frequency of inspections.

Ask your equipment suppliers to give you a list of renewal parts to stock. Use that as a base; experience will show whether it's the best quantity for you. Set up a standard inventory control system, make someone responsible for re-ordering, and watch out for costly duplication.

4. Evaluate Importance—Prepare a list of "vital" equipment (if idled, it would interrupt or delay production). Find the condition of all equipment on that list. Now you have to determine which special maintenance parts to stock as insurance against critical breakdowns. Here's how:

1. Calculate repair times if you have in stock: (a) No major parts. (b) Some major parts. (c) All major parts. (d) Complete unit.

2. Determine repair cost and inventory cost under each of those conditions.

3. Add the three items under each condition to see which is most economical. Example: One company found its failure cost on a 500 hp, slow speed, dc motor was $180,730 with no major parts stocked but only $31,350 with a complete armature in stock. Stocking the whole motor would cost more due to high inventory expense.

5. Establish Program—Schedule planned overhauls for all critical equipment; they take up far less time than the unplanned shutdowns they eliminate or minimize. Overhaul, not by machine, but by manufacturing operation. Consider retirement or replacement of each machine at this time.

Source: Adapted from a General Electric Co. booklet.

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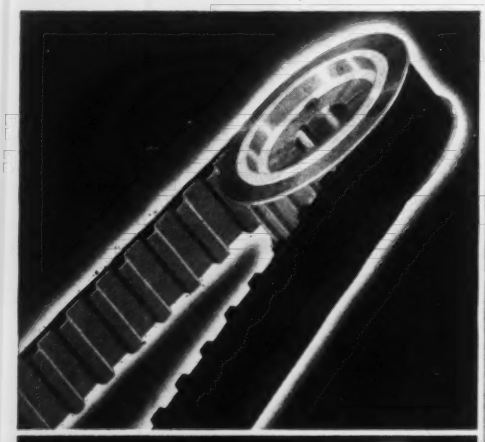
The one RIGHT type of power transmission for your appliances:

U.S. POWERGRIP "TIMING" BELTS or U.S. UNITENSION V-BELTS



CONSIDER WHAT THE U.S. POWERGRIP "TIMING"® BELT CAN DO FOR YOUR PRODUCT:

It gives a simplicity of design with split-second machine response. Built specially for appliances, this belt has teeth which fit into the grooves in the pulley, giving it an efficiency of close to 100%. There is no slippage, no take-up. You can truly stream-line your appliance design—the absence of metal-to-metal contact eliminates need for lubrication and housing devices.

You get these extra advantages: • Smaller, lower-cost motor • Short and fixed centers, high ratio • Reduces assembly costs because fewer units are needed.

The housewife gains, too! • She gains a lightweight, foolproof appliance a woman finds easy to handle, and free of the need for maintenance and service calls.

You get a product easy to demonstrate, easy to sell.

HERE'S WHAT U.S. UNITENSION® V-BELTS WILL DO FOR YOUR PRODUCT:

They provide steady, dependable running on F.H.P. or multiple drives. The pulling members are electronically tensioned in perfect balance, *working as a team*—thereby increasing strength and decreasing vibration. This is the ideal belt for the mechanism that requires V-Belt power transmission.

A field force of "U. S." engineers will help you design the one *right* drive. Get to know the full meaning of the service they can give you.

• • • • •

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Autodom's Questions for '59

Production

Optimists say 6 million.
Pessimists say 4.3 million.
Best Guess Now: 5.5 million.

Prices

How big a boost?
Can some lines hold fast?
What happens to dealers?

Production Will Rise

Output of 1959 cars is expected to approach 5.5 million units. Automakers say they want to hold prices where they are, but it's unlikely that will be possible

HOW MANY CARS will Detroit build next year? Will they cost more?

There's enough talk and opinion around Detroit to make some fair guesses.

Production—Up Slightly

Automakers figure the industry will build and sell 4.4 million cars this year, and the first official market forecast pegs 1959's sales at 5.2 million to 5.5 million. The estimate comes from General Motors Corp.'s Edward T. Ragsdale, Buick general manager. It includes import sales, which should hit at least 450,000 (vs. 385,000 this year).

If production follows the pattern of previous recovery years, car buildups should slightly exceed domestic sales (including imports). This year's reason: The industry plans to enter January with dealer inventories at around 500,000 units, compared with 640,000 at the beginning of 1958.

The low inventory position will call for heavier production during the first half of 1959. Barring an unanticipated relapse, total output can push into the 5.2 million to 5.5 million range quite easily.

Not All Agree—That seems to be the middle of the road view. Even the most optimistic sales people won't plan above 6 million units (and admit that will take some doing). The eternal pessimists (mostly suppliers unable to get contracts) are convinced Detroit will be swamped by small cars, labor troubles, and apathetic shoppers who won't buy because they can't see the recession's end.

It's too early to predict how each company will fare, but Buick obviously is going after Oldsmobile and Plymouth. Olds production is accounting for about 7 per cent and Plymouth for 8 per cent of this year's output. Buick will hit about 6 per cent.

Mr. Ragsdale says Buick is scheduling initial production at 1500 cars daily. Based on a reasonably normal production year, this would be at least 8.5 per cent of a 5.5-million buildup. The GM division has dropped its old series names and will introduce three new ones on Sept. 19: LeSabre (Special), Invicta (Super and Century), and Electra (Roadmaster and Limited).

Prices: Some Will Hold

At Buick's press preview, Mr. Ragsdale said that even if Buick had hit standard volume this year, price increases on '58 cars still wouldn't have paid for the production costs on the model run.

Mr. Ragsdale might well be speaking for the industry when he says his division has established several price lists based on commodity and labor price increases but hasn't yet set prices. Mr. Ragsdale and James O. Wright, Ford Motor Co. vice president, have declared that prices will have to increase if labor costs rise.

The Big If—Even if the UAW finally agrees to extend the auto contracts, built-in cost of living and annual improvement factors will trigger wage increases of 9 cents per man per hour. Two months of contractless operations have saved the Big Three about $8 million in escalator costs.

This year, automotive suppliers claim the industry is pushing hard to make them hold to 1958 prices, but already there's talk of some who have been allowed to pass on material cost increases (but not labor boosts).

Bad Policy—Several cost analysts

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Roadtesting Rambler

WE'VE BEEN INTERESTED in AMC's Rambler American because it is the car most likely to compete with the smaller economy cars Ford, Chevrolet, and Studebaker-Packard have underway.

The American isn't a car to pile four people into and set off cross country—two, yes. The 100-in. wheelbase also makes for stiffer riding than we like for long distances. The coil and leaf springs give an adequate ride on paved roads, but there's plenty of jounce on gravel. A high center of gravity doesn't help cornering, and above 65 mph the car has a tendency to wander.

Economical—But let's face it, AMC designed it for economy, and we are particularly impressed with the results. We started with a full tank and after 401 miles of around-town driving took on 16.9 gallons of regular octane gas. On a 250-mi. trip, gas consumption was 24.2 mpg.

The 90-hp engine with 195.6 cu. in. displacement and 8:1 compression ratio has a lot of pep. Our test car has an automatic transmission and a 3.31:1 axle ratio. Casual checks indicate the car will move from 0-45 mph in 5.2 seconds.

The Rambler American Super carries an advertised list price of $1874. The De Luxe is $1789. Transportation, taxes, handling, and accessory charges will bring the total to about $2100-$2200.

have hold STEEL the industry could absorb some of the increases but hardly all. More important is that holding prices would tend to support Walter Reuther's charge that profits are higher than necessary.

Under those conditions, it looks like two things may happen: Prices will go up on volume lines, and dealer cost-price setups will be slightly revised.

It could work like this, says one marketing man: In divisions which can't absorb any more cost increases, the heavy selling lines will be marked up. Low volume styles and higher priced series will be left unchanged.

The boost won't be much (some sources think $30 to $40), but it will be enough to carry losses suffered in other series.

Dealers Juggle—Another possibility is that prices to dealers will go up, but suggested dealer list prices will not. This means an automatic cut in the traditional 24 to 25 per cent dealer markup. One hint this may be coming: The 3 per cent cut in transportation excise taxes is being passed along to dealers by carmakers. This would just about compensate for any increase in price dealers may have to pay. It would mean suggested prices could be left alone or upped only a few bucks.

As usual, the dealer will have to make his profit on accessories, and they will get a real boost. Prices of dealer installed accessories don't have to be posted under the new price labeling law.

Chrysler Gets Small Car

Chrysler Corp. has entered the small car market by buying 15.2 per cent interest in the French Simca firm from Ford Motor Co. L. L. Colbert, Chrysler president, says his company now has sole distribution rights in this country and Canada.

Simca builds 4 and 8 cylinder cars on 96 and 106 in. wheelbases. It also has 54 truck models and makes tractors and farm equipment. Mr. Colbert says this country has 600 Simca dealers—40 per cent are expected to also handle Chrysler lines. More Chrysler dealers will probably get franchises.

U. S. Auto Output

	Passenger Only 1958	1957
January	489,357	642,090
February	392,112	571,098
March	357,049	578,826
April	316,503	549,239
May	349,474	531,365
June	337,355	500,271
6 Mo. Total	2,240,850	3,372,889
July		495,629
August		524,354
September		284,265
October		327,362
November		578,601
December		534,714
Total		6,117,814
Week Ended	**1958**	**1957**
July 5	35,273	73,682
July 12	73,062	111,943
July 19	85,533	117,205
July 26	85,519	119,857
Aug. 2	61,908†	119,323
Aug. 9	49,000*	118,864

Source: *Ward's Automotive Reports.*
†Preliminary. *Estimated by STEEL.

Scotch About Profits?

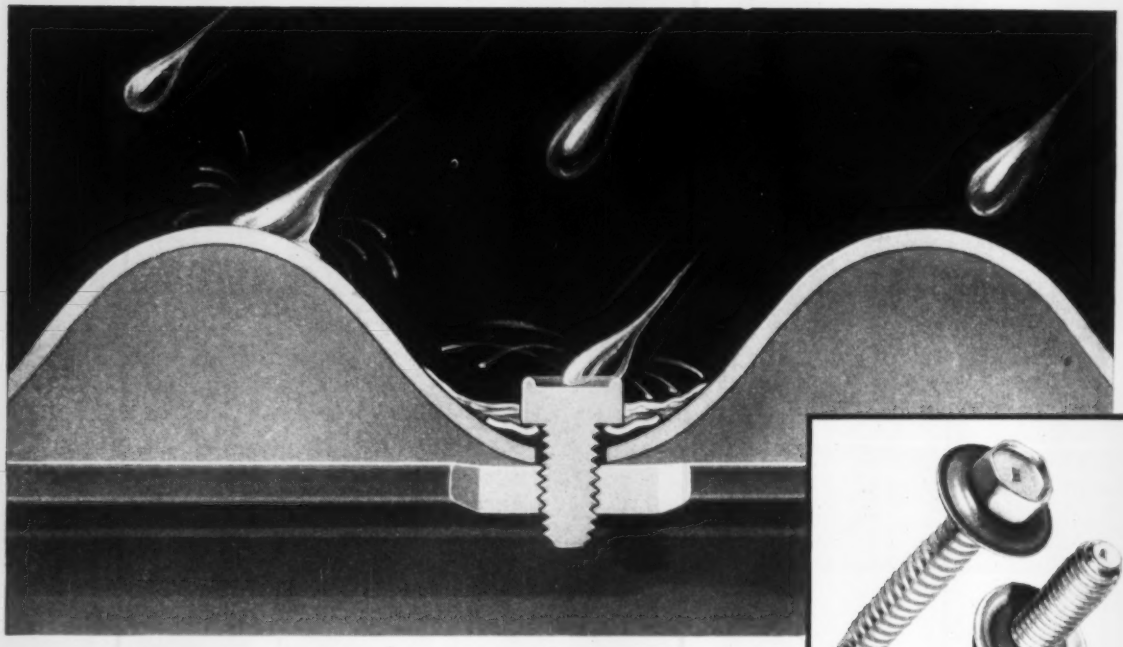
Talk to

Snyder

TOOL AND ENGINEERING COMPANY

3400 E. Lafayette, Detroit 7, Michigan

Special Machine Tools with Automation for More Than 30 Years



NEW SPIN-SEAL* SCREWS GIVE

leakproof fastening

in products . . . in construction

THESE NEW, leakproof fasteners combine a special washer† and built-in sealant with standard machine, cap, or tapping screws.

Three-way seal – Tightening the RB&W "SPIN-SEAL" screw forces the flow-in sealant into spaces around the (1) head, (2) threads and (3) clearance hole, hermetically sealing the opening. The concave, springy washer confines and controls the flow of the sealant and provides an *additional* spring tension seal. Even on corrugated surfaces, the washer conforms to the curve of either crown or valley.

Permanent gasket – Compound is plastic, rather than elastic. Stable and non-aging, it won't split or ozone-check under pressure, is unaffected by industrial atmospheres, resists water, acids, also oil.

Won't gouge finish – Since the washer does not turn with the screw, finished surfaces are not damaged during installation. Nor is there any twisting or damage to sealant.

Standard styles – "SPIN-SEAL" fasteners are available in all standard screw styles except flat head.

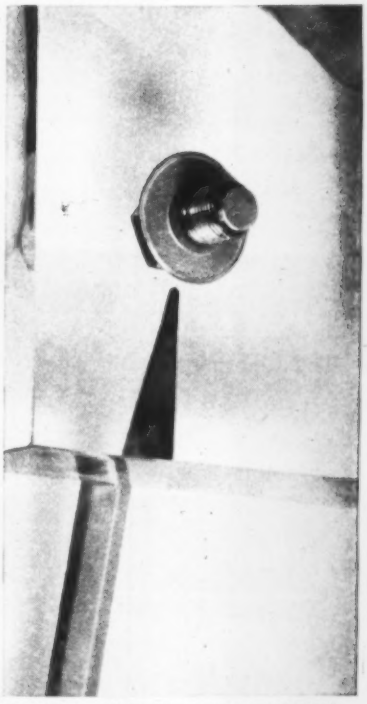
Send for new bulletin SS-1A. It gives full information on "SPIN-SEAL" fasteners. Russell, Burdsall & Ward Bolt and Nut Co.

*Trade Mark †U. S. & Can. Pats. Pend.

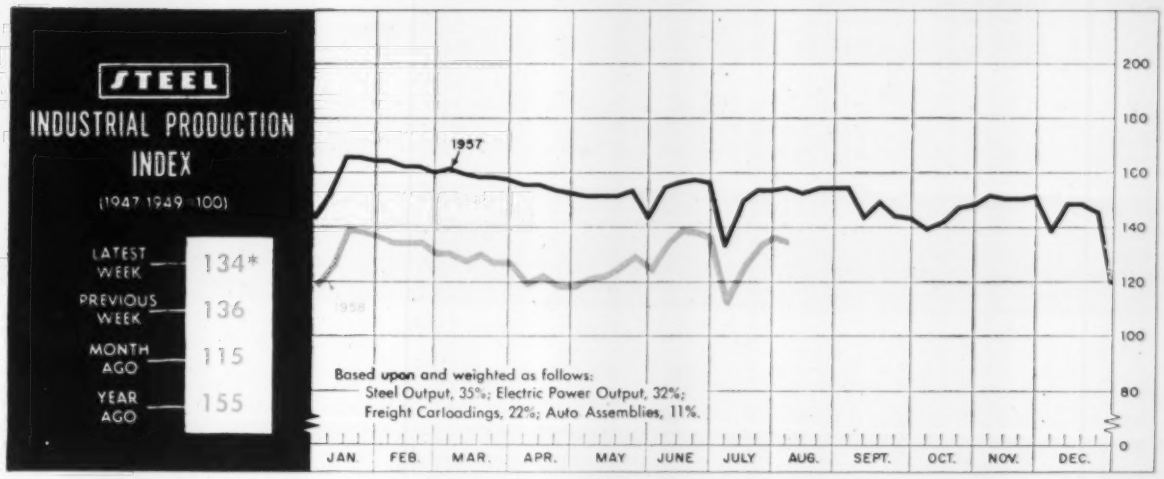
R B & W

114th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver; Fargo. **Distributors from coast to coast.**



Note how sealant fills space under washer and flows into clearance hole and around threads of RB&W "SPIN-SEAL" Screw.



*Week ended Aug. 2.

Economy Weathers Cutbacks in Autos

AUTOMAKERS are lowering the curtain on another model year, but don't expect business to take a long, leisurely intermission until the next act begins. A 28 per cent reduction in auto output between the weeks ended July 26 and Aug. 2 caused only a moderate ripple in STEEL's industrial production index. Other factors continued to gain strength.

The index declined 2 points in the week ended Aug. 2 to a preliminary 134 (1947-49=100). Model changeovers accounted for sharp drops in auto production, and output will remain low until early September. But STEEL's index is expected to hold comfortably above the second quarter lows. Here's why:

Steel's Stronger—Last week, steel output rose to an estimated 1,611,000 tons, reports the American Iron & Steel Institute. (June had been the only month this year in which weekly production topped 1.6 million tons. Price hedge buying was an influence then.) It was the fifth weekly gain in a row. Slowdowns in Detroit won't cut into production during August. Steel will be made for '59s this month.

Power Output Gains — Electric energy distributed in the week ended July 26 totaled 12.3 billion kw-hr, reports the Edison Electric Institute, New York. Power output has climbed steadily since the July 4 holiday and is slightly higher than the year-ago mark.

Carloadings Rise—Carloadings increased by 4.4 per cent in the week ended July 26, the Association of American Railroads, Washington, reports. Loadings of revenue freight totaled 607,701 cars.

Loadings have gained each week since early July. Significantly, almost all commodities shared in the increase. Although livestock loading declined moderately, coal, miscellaneous freight, grain, forest products, and ore loading were on the uptrend.

July advances kept STEEL's production index above second quarter

BAROMETERS OF BUSINESS

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
INDUSTRY			
Steel Ingot Production (1000 net tons)[2]	1,611[1]	1,561	2,043
Electric Power Distributed (million kw-hr)	12,300[1]	12,319	12,474
Bituminous Coal Output (1000 tons)	7,910[1]	7,640	10,120
Crude Oil Production (daily avg—1000 bbl)	6,550[1]	6,535	6,843
Construction Volume (*ENR*—millions)	$388.0	$455.4	$401.0
Auto, Truck Output, U. S., Canada (*Ward's*)	80,935[1]	107,941	140,253
TRADE			
Freight Carloadings (1000 cars)	610[1]	608	740
Business Failures (Dun & Bradstreet)	264	279	228
Currency in Circulation (millions)[3]	$31,086	$31,217	$30,909
Dept. Store Sales (changes from year ago)[3]	+2%	+2%	+4%
FINANCE			
Bank Clearings (Dun & Bradstreet, millions)	$21,657	$23,280	$20,871
Federal Gross Debt (billions)	$275.9	$275.8	$272.8
Bond Volume, NYSE (millions)	$27.3	$24.9	$16.1
Stocks Sales, NYSE (thousands of shares)	18,760	18,581	8,873
Loans and Investments (billions)[4]	$93.8	$94.2	$86.2
U. S. Govt. Obligations Held (billions)[4]	$32.1	$32.2	$25.2
PRICES			
STEEL's Finished Steel Price Index[5]	239.15	239.15	239.15
STEEL's Nonferrous Metal Price Index[6]	199.4	198.6	216.8
All Commodities[7]	119.4	119.3	117.9
Commodities Other than Farm & Foods[7]	126.0	126.0	125.5

*Dates on request. [1]Preliminary. [2]Weekly capacities, net tons: 1958, 2,699,173; 1957, 2,559,490. [3]Federal Reserve Board. [4]Member banks, Federal Reserve System. [5]1935-39=100. [6]1936-39=100. [7]Bureau of Labor Statistics Index, 1947-49=100.

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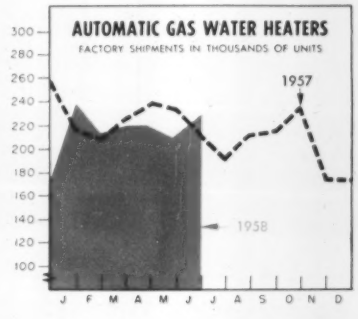
Place an advertisement in the "Help Wanted" columns of STEEL's classified pages. Your advertisement will reach the qualified men you need, because STEEL is addressed to highly-trained men in all phases of metalworking

STEEL
The Metalworking Weekly

THE BUSINESS TREND

	1958	1957	1956
Jan.	3,045	7,380	10,244
Feb.	3,684	8,373	12,163
Mar.	2,871	9,090	7,025
Apr.	3,572	3,164	8,803
May	953	3,994	3,667
June	3,672	2,974	4,748
July	....	4,332	4,140
Aug.	....	3,924	6,722
Sept.	....	2,337	3,057
Oct.	....	3,621	8,741
Nov.	....	2,832	3,986
Dec.	....	3,992	5,858

*Not including new orders for steel mill furnaces.
Industrial Heating Equipment Assn. Inc.



	Shipments—Units		
	1958	1957	1956
Jan.	235,100	214,900	239,000
Feb.	216,300	208,200	259,200
Mar.	221,600	226,600	267,500
Apr.	222,700	238,200	241,200
May	209,100	233,400	244,300
June	228,100	211,700	251,500
July	.....	192,500	231,900
Aug.	.....	210,300	243,500
Sept.	.....	215,500	218,100
Oct.	.....	234,700	224,700
Nov.	.....	173,300	184,400
Dec.	.....	172,700	156,800
Totals	.....	2,532,000	2,762,100

*Preliminary.
Gas Appliance Mfrs. Assn.

Charts copyright, 1958, STEEL.

lows, but the extent of the anticipated third and fourth quarter recovery depends largely on the consumer. His reluctance to buy durable goods early this year stifled industrial activity. Statistics on savings show the average American has ample money to spend, although prices are rising.

Several business observers think improvement in the business climate and fear that goods will cost more in future will encourage the buyer to increase his spending. The Labor Department adds another encouraging report. Its bimonthly surveys of manpower show the employment situation steadied in late spring despite an influx of students and other summer job seekers.

Machinery Demand Steady — Another favorable factor in the outlook for the second half: The decline in orders for machinery has halted. The decline in investment for new plant and equipment should also end soon, although there's no indication of a gain in this segment of metalworking.

Earnings Turn Up

The average factory worker had more money to spend in June because of a lengthened workweek, reports the Labor Department. After deduction of income and Social Security taxes, spendable earnings of a worker with three dependents reached a high of $75.55 per week. He had $73.67 to spend in April, $74.51 in May.

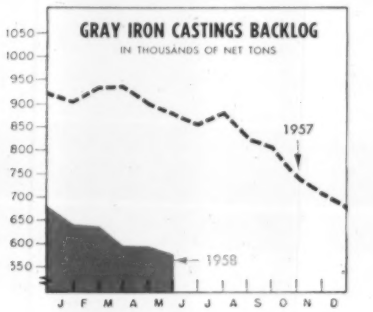
Price hikes partially offset the increases, but buying power went up almost 1.5 per cent between May and June.

Sales Are Rising

Sales statistics are additional evidence that the recession passed its low point in April and May and industry began to recover in June.

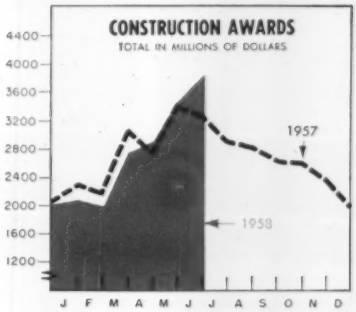
Says the Commerce Department: "Sales and new orders advanced from May to June. Backlogs of unfilled orders continued to decline but at a more moderate pace than in recent months. There was substantial liquidation of factory inventories in June, and stock-sales ratios were reduced for the third successive month."

The department reports sales by manufacturers in June were 2 per cent above May's. Almost all major component industries contributed to the 3 per cent rise in durable goods. Nondurable goods advanced by 1 per cent.



	Shipments		Unfilled Orders*	
	1958	1957	1958	1957
Jan.	868	1,213	638	905
Feb.	753	1,103	632	931
Mar.	796	1,133	590	935
Apr.	807	1,120	582	899
May	820	1,112	570	880
June	...	1,058	...	853
July	...	954	...	880
Aug.	...	1,076	...	826
Sept.	...	990	...	805
Oct.	...	1,100	...	740
Nov.	...	940	...	705
Dec.	...	864	...	676
Total	...	12,663		

*For sale. U. S. Bureau of the Census.



	Total		Building	
	1958	1957	1958	1957
Jan.	2,066.1	2,299.6	1,536.2	1,730.7
Feb.	1,953.4	2,161.0	1,478.1	1,695.5
Mar.	2,721.2	3,078.0	2,037.7	2,199.7
Apr.	2,881.0	2,776.4	2,198.0	2,069.7
May	3,402.6	3,399.5	2,470.3	2,416.8
June	3,819.6	3,243.5	2,340.3	2,341.5
July	.....	2,900.7	.....	2,247.6
Aug.	.....	2,818.0	.....	2,291.8
Sept.	.....	2,624.9	.....	2,092.2
Oct.	.....	2,613.8	.....	2,075.6
Nov.	.....	2,370.7	.....	1,808.5
Dec.	.....	1,982.3	.....	1,457.5
Totals	.....	32,268.4	.....	24,427.1

F. W. Dodge Corp.

New orders placed with manufacturers in June totaled about $26 billion. That's an advance of 1 per cent from May, after seasonal allowances.

Appliances Gain

Signs of an upswing in appliance buying continue to appear. The Gas Appliance Manufacturers Association Inc., New York, reports shipments of gas-fired water heaters reached a preliminary 228,100 in June, nearly 10 per cent higher than the figure for the previous month and 8 per cent above the June, 1957, mark.

Demand for domestic gas ranges improved moderately in June. Shipments reached 152,000 units, compared with 147,300 in May.

Construction: Still Firm

Heavy construction slowed moderately in the last week of July, but it is still 6 per cent better off than it was last year.

Contract awards came to $388 million in the week ended July 31, bringing the year's sum to $12.1 billion, reports *Engineering News-Record*. This year is topped only by 1956.

Foundry Backlog Slides

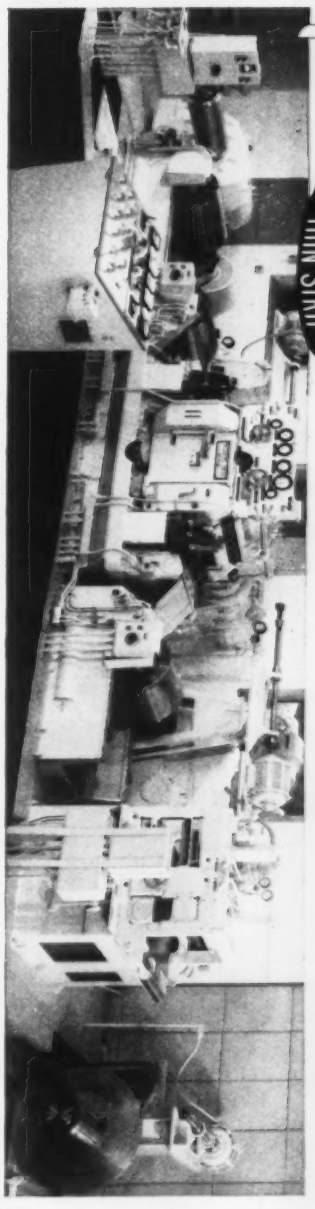
Foundries aren't doing as well as steelmakers on the sales front, Commerce Department reports show. While shipments of gray iron castings in May amounted to 820,000 tons, 2 per cent above April deliveries, unfilled orders at the end of the month were down from April's and 35 per cent below those in May, 1957.

Shipments of malleable iron castings dropped 5 per cent in May, as order backlog fell 42 per cent below the previous year's level.

Deliveries of steel castings in May were 5 per cent below April's. Unfilled orders were 58 per cent below what they were on May 31, 1957.

Trends Fore and Aft

- The American Gear Manufacturers Association, Washington, reports sales climbed in June. The association's index reached 173.8 in that month, compared with 142.2 in May (1947-49 = 100).
- Shipments of steel shipping barrels and drums in May were 6 per cent above April's but 15 per cent below those in May, 1957, reports the Department of Commerce. Deliveries came to 2,732,000 units.



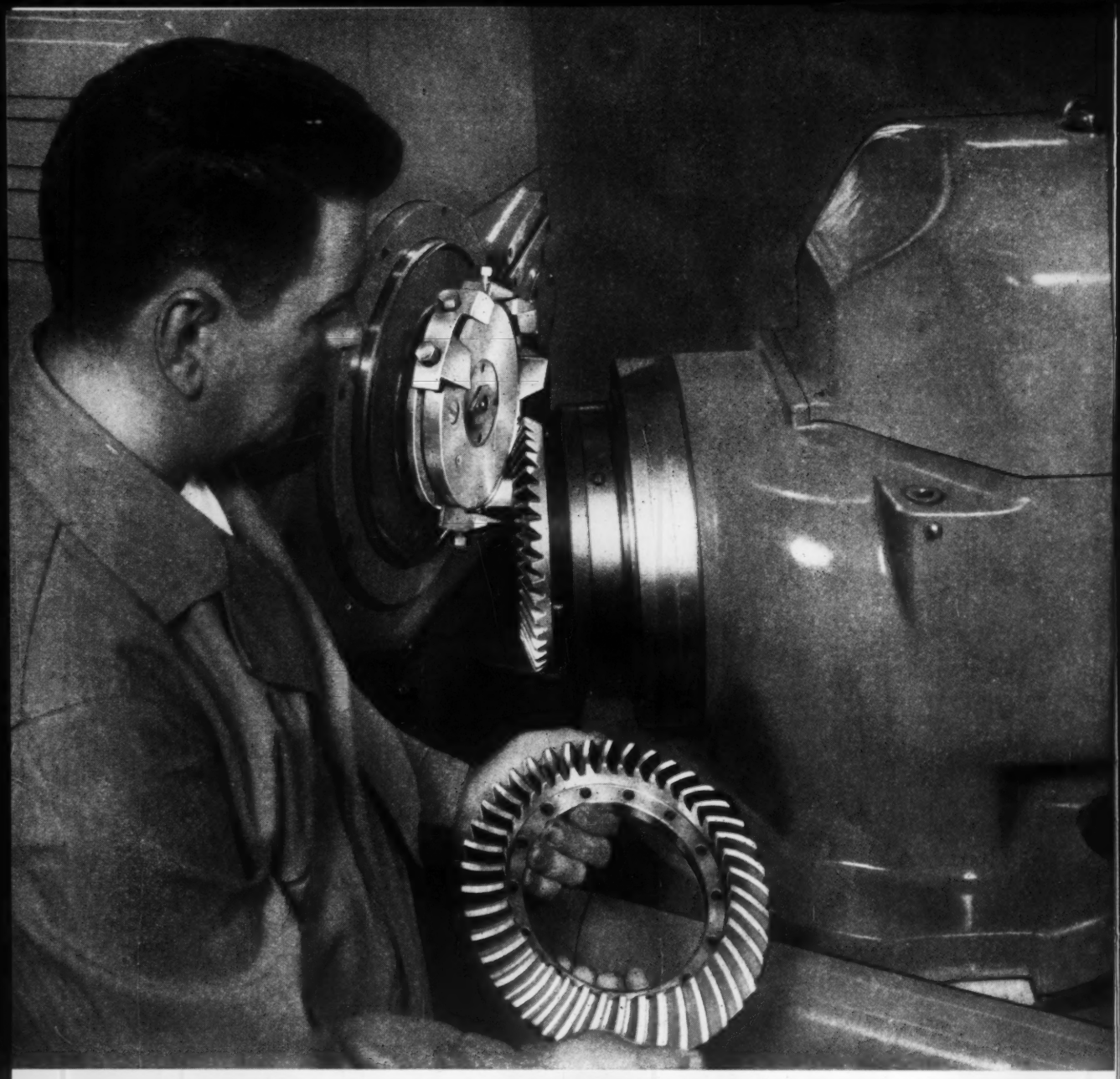
25,000:1 This fantastic ratio is possible only at Somers, where the latest equipment produces thin strip down to .001", as wide as 25".

With the installation of one of the largest Sendzimir mills in the non-ferrous industry, Somers is prepared to meet the broadest range of dimensional specifications, since it is already supplying thin strip down to .0001" in narrower widths.

Pure Nickel, Monel, Inconel and Inconel "X" are produced in gauges from .0001" to .020". Stainless Steel, electrolytic Copper and its alloys, such as Brass, Nickel Silver and Phosphor Bronze from .0001" to .010".

For a complete survey of your strip problems at no cost or obligation, write for field engineer or Confidential Data Blank.

Somers Brass Company, Inc.
104 Baldwin Ave. Waterbury, Conn.



Helixform*—a new method for bevel gear production!

The new No. 112 Hypoid Helixform Gear Finisher assures improved quality and increased production on spiral bevel and hypoid non-generated ring gears up to 10½" in diameter, and 2½ DP such as employed in passenger car axles.

The Helixform Cutting Method used on this machine offers these advantages:

Conjugate tooth surfaces, minimized gear development, complete control of tooth bearing, and greater adjustability in final assembly.

We will be glad to send a bulletin giving further details on request. Ask for literature on the No. 112 Hypoid Helixform Gear Finisher and the companion No. 112 Hypoid Gear Rougher. Write for it today.

*Trade-Mark

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60-A

WILLIAM F. CRAWFORD
Republic Flow Meters pres.

DUANE R. BRANAKA
Valvair sales manager

HARRY J. DEMPSEY JR.
Easton Car sales manager

AVERY C. ADAMS
to be J&L chairman

William F. Crawford was elected president, **Republic Flow Meters Co.**, Chicago, subsidiary of Rockwell Mfg. Co. **James D. Cunningham** was elected chairman. Mr. Crawford is also president of Edward Valves Inc., and Valve Products Inc., both Rockwell subsidiaries.

Duane R. Branaka was appointed sales manager of **Valvair Corp.**, affiliate of Sinclair-Collins Valve Co., Akron. He was Detroit district sales manager for Warner Electric Brake & Clutch Co.

Thomas J. Moore Jr. was appointed general sales manager, **Tuthill Spring Co.**, Momence, Ill. **W. R. Walker** was appointed manager of original equipment sales; **Don Nelson,** manager of replacement spring sales.

E. N. Smith was appointed technical director of **Kennametal Inc.'s** chemical and metallurgical laboratory in Latrobe, Pa. For the last five years, he has been metallurgical superintendent in charge of refining, powder preparation, and sintering operations.

Kenneth W. Meytrott was elected chairman, **Ettco Tool & Machine Co. Inc.**, Brooklyn, N. Y. **Edward G. Maylinger** was elected president.

J. M. Moon was elected executive vice president, **Signode Steel Strapping Co.**, Chicago. He continues to direct sales actitvies.

George M. Howser was appointed manager of aluminum sales, **Rolled Steel Corp.**, Skokie, Ill.

Harry J. Dempsey Jr. was made sales manager, **Easton Car & Construction Co.**, Easton, Pa. He was formerly manager of the New York district, handling regional and export sales.

Ray T. Winterringer was named superintendent, electrical department, at **Republic Steel Corp.'s** South Chicago steel plant. He succeeds the late **L. A. Wynd. Frank J. Zupancic** succeeds Mr. Winterringer as assistant superintendent.

Thomas W. Pettus was appointed president of **Scullin Steel Co.**, division of Universal Marion Corp., St. Louis. Former executive vice president, he succeeds **Edward F. Judge,** retired.

Thomas P. Wagner was named president, **Standard Steel Specialty Co.**, Beaver Falls, Pa. He succeeds **James B. Jamison,** now chairman. Mr. Wagner, who joined the company in 1950 as vice president and treasurer, also is president of Superior Drawn Steel Co., Monaca, Pa.

Fremont Fisher joined **Electric Auto-Lite Co.**, Toledo, Ohio, as general sales manager, electrical products group. **A. N. Kaiser** was made chief engineer for the group's enlarged Syracuse, N. Y., division engineering facilities.

Arthur I. Mendolia was named assistant general manager, electrochemicals department, **E. I. du Pont de Nemours & Co. Inc.**, Wilmington, Del. He succeeds **W. Samuel Carpenter III,** who became general manager, international department.

Avery C. Adams, president of **Jones & Laughlin Steel Corp.**, Pittsburgh, will succeed **Adm. Ben Moreell** as chairman on Oct. 1. Admiral Moreell retires on that date, but will continue as a director and a member of the executive committee. Mr. Adams will retain the offices of president and chief executive officer.

Donald J. Wolfe was named manager of metallurgical sales for the engineering and construction division of **Southwestern Engineering Co.**, Los Angeles. He will direct sales for the Krupp-Renn process, for which Southwestern is exclusive U. S. licensee.

William H. Searles fills the new post of manager of the market research department at **Bunting Brass & Bronze Co.**, Toledo, Ohio. He was with Reynolds Metals Co.

William E. Geidt, advertising manager, **Inland Steel Co.**, Chicago, was made assistant sales manager, sheet and strip division. He replaces **John B. Judkins,** who was made assistant manager, tin plate and export sales division. **Richard F. Killelea** succeeds Mr. Geidt.

B. R. Pinney was elected president, **Copco Fabricated Products Div.**, Detroit, Copco Steel & Engineering Co.

Sid Mitwol was made general manager, rectifier division, **Sel-Rex Corp.**, Nutley, N. J.

Donald R. Spotz was made vice president-sales for **Pesco Products Div.**, and **Wooster, Ohio, Div.**, Borg-Warner Corp. He was gen-

IRA M. SLATER

FRED H. LARRABEE JR.

P. R. Mallory vibrator division posts

GEORGE M. MUSCHAMP

O. B. WILSON

Minneapolis-Honeywell products group changes

eral sales manager, Pesco Products Div., Cleveland.

Ira M. Slater, former sales manager of **P. R. Mallory & Co. Inc.'s** vibrator division, Du Quoin, Ill., was made manager, sales engineering, for the division. **Fred H. Larrabee Jr.** was made the division's sales manager. He was vice president of Fred H. Larrabee Co., manufacturers' representatives in Kansas City, Mo., and St. Louis, before joining Mallory in June.

Harrison R. MacLeod was appointed chief engineer of **Colson Corp.'s** new Jonesboro, Ark., plant. He joined Colson in 1954, and has served as methods engineer.

Monarch Aluminum Mfg. Co., Cleveland, appointed **Russell A. Lawson**, former vice president-sales, to the new office of vice president-marketing. **Walter V. Tracy**, former assistant general sales manager, commercial castings division, was made general sales manager of the commercial division.

Minneapolis - Honeywell Regulator Co., Minneapolis, announces organizational changes for its industrial products group: **George M. Muschamp** was made group vice president-engineering; **O. B. Wilson**, group vice president-marketing; **R. L. Mallory** fills the new post of sales manager. **John M. Wilson** was named director of engineering, relieving Mr. Muschamp of direct responsibility for Brown Instrument Div.'s engineering department. **J. A. Robinson** was made Brown sales manager; **Howard J. MacDonald**, general manager, valve division; **H. Earl Benson**, sales manager, Rubicon Div.

Roy F. Coppedge Jr., executive vice president, was elected president of **National Distillers & Chemical Corp.**, New York. He succeeds **John E. Bierwirth**, elected chairman.

James F. Smith was named manager of **Anaconda Aluminum Co.'s** reduction works at Columbia Falls, Mont. He succeeds **Howard G. Satterthwaite**, retired. Mr. Smith has been general superintendent of the plant since 1952.

Arch R. Young was promoted to assistant manager of purchases at **Talon Inc.**, Meadville, Pa. He succeeds **R. C. Straw**, who is nearing retirement, and will now handle certain purchasing assignments.

Paul A. Garrison was made sales manager, engineering products section, special products division, **I-T-E Circuit Breaker Co.**, Philadelphia.

Walter A. Anderson was elected president of **Denton & Anderson Co.**, Huntington Woods, Mich., manufacturers' representative for Taylor - Winfield Corp., Warren, Ohio; Ohio Seamless Tube Div., Copperweld Steel Co., Shelby, Ohio, and Induction Heating Corp., New York. Denton & Anderson is also the owner of Taylor-Winfield, of which Mr. Anderson has been executive vice president since 1912.

Joseph T. Miller Jr. was appointed manager of bearing sales for **Hoover Ball & Bearing Co.**, Ann Arbor,

HARRISON R. MACLEOD

Colson chief engineer-Ark.

RUSSELL A. LAWSON

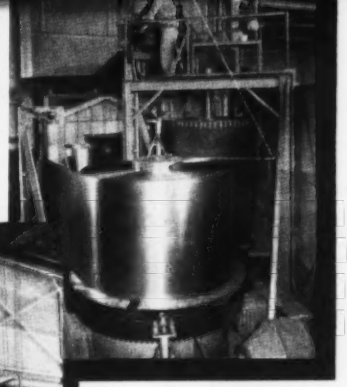
Monarch v. p.-marketing

JAMES F. SMITH

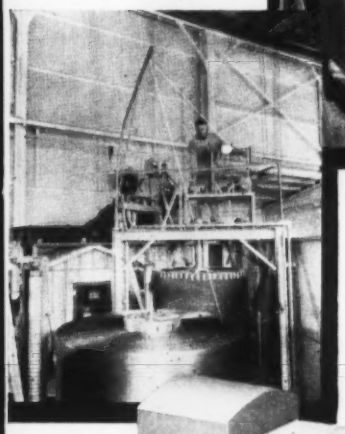
Anaconda reduction works mgr.

JOSEPH T. MILLER JR.

Hoover Ball Bearing sales



Right—Tight coil being opened. Note separator string being threaded into the coil.
Below—Separator string being removed from coil.



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the revolutionary opened coil annealer, designed by Lee Wilson ...it will substantially reduce costs of annealing steel

Methods of opening and handling opened coils, heart of New System

Lee Wilson engineers have developed a method for opening and handling opened coils that makes it possible to expose from 200 to 1000 times the area to heat. This means a faster, more uniform anneal. The new system, further, drastically reduces the expensive process inventory required in the annealing operation. There are many other important advantages to this revolutionary new system. Be sure you have all the facts. Write today for your copy of the Opened Coil Annealer brochure that explains the system in detail.

Opened coil being rewound into a tight coil after annealing.

2505

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HIGH PRODUCTION ANNEALING SYSTEMS
MAKE THE BEST METALS BETTER

* ORIGINATORS AND LEADING PRODUCERS OF OPENED COIL AND SINGLE STACK FURNACES

L. T. JOHNSTON W. B. QUAIL W. S. NEWELL

L. H. JUENGLING J. S. THOMAS R. F. KUHNLEIN

Armco Steel executive appointments

Mich. He was assistant sales manager in charge of OEM sales.

Moreton Price was made director of sales and contracts for **AC Spark Plug Div.**, Milwaukee, General Motors Corp. He succeeds **J. W. Stack**, resigned.

Hooker Chemical Corp., Niagara Falls, N. Y., elected as senior vice presidents **Frank W. Dennis, Dr. Earl L. Whitford**, and **Robert E. Wilkin. John S. Coey** was elected vice president, eastern chemical sales.

Harry L. Harner was appointed western regional sales manager, **Alloy Tube Div.**, Carpenter Steel Co. He is at Los Angeles. Mr. Harner was Pacific Northwest sales representative for the division.

Jones & Laughlin Steel Corp. named **W. E. Porter** an additional assistant district sales manager, New York; **Smith Wilson**, assistant district sales manager, Pittsburgh; **W. W. Jones**, assistant to the Cleveland district sales manager; **E. Ross Nelson**, an additional assistant district sales manager, Detroit; **James C. Mourkas**, assistant manager, tin mill products division.

M. W. Hanner was made southeastern district manager, **Capewell Mfg. Co.** He is in Atlanta. **Kenneth J. Wilson** was made sales engineer in the Richmond, Va., area.

William T. Wilbur was made chief engineer, **Progressive Welder Sales Co.**, Pontiac, Mich. **Stephen E. Jerome** was named factory manager.

Fred Spiegl, founder and former executive vice president, **Titanium Fabricators Inc.**, Burbank, Calif., was elected president.

Louis C. Hoier succeeds **Stephen J. Sferra**, retired, as superintendent, coupling department, **Youngstown Sheet & Tube Co.'s** Campbell Works.

Vincent S. Burger was appointed manager of alloy and carbon sales for **Green River Steel Corp.**, Owensboro, Ky., subsidiary of Jessop Steel Co. He was special representative-alloy products.

Executive changes at **Armco Steel Corp.**, Middletown, Ohio, are: **L. T. Johnston**, vice president - sales, elected executive vice president, with increased general staff duties in addition to responsibilities for sales of both steel divisions and four subsidiaries; **W. B. Quail**, general sales manager - Armco Div., and **W. S. Newell**, general sales manager-Sheffield Div., elected vice presidents in charge of steel sales in their respective divisions; **L. H. Juengling**, vice president - operations, Sheffield Div., transferring to general headquarters in charge of purchasing and traffic; **J. S. Thomas**, director of purchases, assuming added responsibilities as general director of purchases for the company. **R. F. Kuhnlein** was elected vice president-Sheffield Div. He is succeeded as works manager, Kansas City, Mo., by **R. C. Rhoades. E. H. Thorsteinson**, vice president-controller, National Supply, was made assistant to Armco's president. **C. W. Beck**, manager of raw materials purchase, was elected director of purchases, Armco Div.

Reaction Motors Div., Denville, N. J., Thiokol Chemical Corp., appointed **Richard P. Frazee** director of sales and service; **Harris D. Gilbert**, manager of contracts.

Charles J. Jacobus was appointed chief engineer for **Yale & Towne Mfg. Co.'s** Trojan tractor shovel line, Batavia, N. Y. He was product engineer, construction machinery division, Clark Equipment Co.

OBITUARIES...

William D. Goad, 43, manager of specialty project sales for **Tube Reducing Corp.**, Wallington, N. J., died July 11.

Wallace T. Gray, 57, plant manager, **Brush Instrument Div.**, Clevite Corp., Cleveland, died Aug. 2.

Wilfred E. Tabb, 65, former production manager for **Motch & Merryweather Machinery Co.**, Cleveland, died July 27.

Brinkman D. Cronan, 53, partner and cofounder of **Toledo Abrasive & Supply Co.**, Toledo, Ohio, died July 21.

Every fastener we make is statistically quality controlled ...even though made in the millions. Only the most modern methods and equipment are used. When you ask for Lamson fasteners – whether standards or specials – you know you're getting the very best. Men who make decisions involving company money have come to expect and depend on this kind of product from us.

L & S

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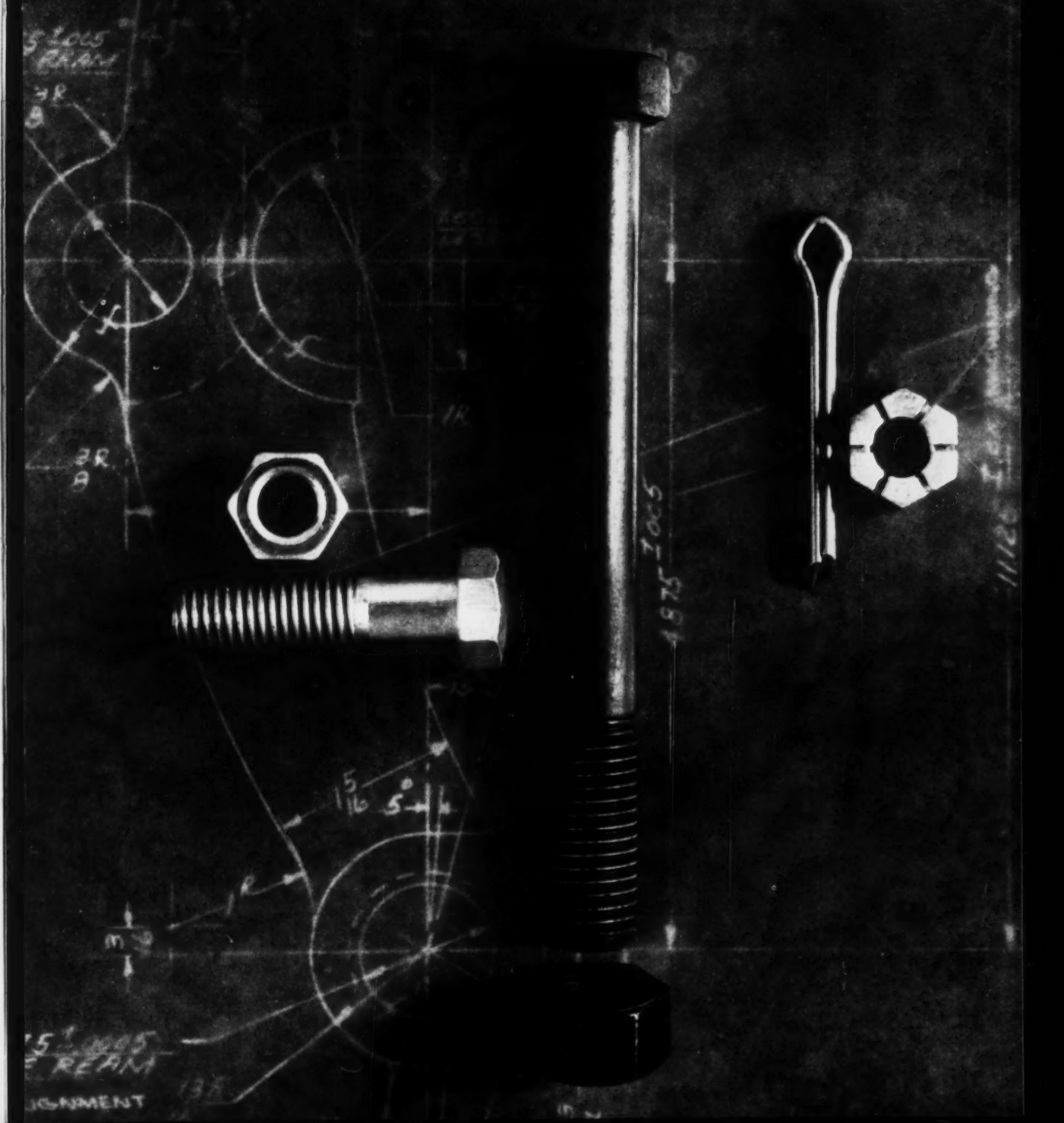
5000 Tiedeman Road, Cleveland 9, Ohio • Plants at Cleveland and Kent, Ohio • Chicago • Birmingham



Carborundum Builds

$6-million plant at Niagara Falls, N. Y., will turn out grinding wheels. More facilities planned

CARBORUNDUM CO., Niagara Falls, N. Y., will build a $6-million plant on Buffalo Avenue, that city, for the manufacture of 4 to 14 in. grinding wheels.

Although the plant will not be fully automatic, it will feature important special automatic and semi-automatic equipment. An indication of the production rate: One machine will do six operations in automatic sequence, turning out a cup wheel 4 in. in diameter every 17 seconds.

Benefits—Gen. Clinton F. Robinson, president, says that with full allowance for amortizing the cost of the project, the facility will lower production costs, improve the quality of grinding wheels, and make it possible to duplicate wheel dimensions for repeat orders.

Authorization for the project followed union acceptance of new contract provisions which make it practical to invest substantial capital in the Niagara Falls area. The company plans to add other facilities (cost, $4 million) for the manufacture of vitrified products.

Buys Electronics Div.

Mandrel Industries Inc., Houston, purchased the Electronics Div. of Hall-Scott Inc., Burbank, Calif., subject to approval of Hall-Scott shareholders.

New Firms Organized

Pyrometer Co. of America has been organized at 600 E. Lincoln Highway, Penndel (Philadelphia), Pa. The firm will make pyrometric accessories. Officers are: President, John V. Metzger; vice president, Leonard Bonn; sales manager, C. J. Smolinske; and chief engineer, E. R. Stroik.

Air Heaters Inc. has been formed by Arthur A. Olson, Youngstown, president; T. F. Schilling, Elyria, Ohio, treasurer; John Wehmhoff, Elyria, secretary; and Lee Wilson, Cleveland, member of the board of directors. The firm will design and construct heating systems and will maintain offices in Youngstown and Elyria.

A new company, Ceramics for Industry Corp., is manufacturing a wide variety of precision ceramic parts and composities in a 15,000 sq ft plant on Cottage Place, Mineola, N. Y. R. F. Doran is executive vice president.

New Refractory Plant

Walsh Refractories Inc. will construct a plant in St. Louis for the manufacture of fusion cast refractories used in glassmaking. The plant, says A. J. Tomasek, president, will cost more than $1 million and is expected to be in operation by early 1959.

Merrill Is Adding Space

Merrill Mfg. Corp., Merrill, Wis., is adding 60,000 ft to its facilities. F. E. Taylor, president, says one of the plants will be sold as soon as the company occupies its new quarters.

Installs Vacuum Furnace

Stainless Processing Div., Wall Colmonoy Corp., Detroit, has installed a 32-in. vacuum furnace for degassing, annealing, and brazing. The division also announces development of a new nickel-base brazing alloy (Nicrobraz 50) containing chromium and phosphorus for high temperature service.

Opens Hydrogen Plant

Linde Co., a division of Union Carbide Corp., New York, is producing high-purity hydrogen at a new plant at Linden, N. J. The plant was built on land leased from General Aniline & Film Corp. which will supply crude hydrogen for processing at the Linden plant.

Steel Company Formed

Southern Steel Service Co. Inc. (2040 N. Rio Grande Ave., Orlando, Fla.) has been formed by Henry W. Doctor, former sales manager and head of alloy and stainless steel engineering in the Midwest for Babcock & Wilcox Co. The firm will supply special stainless, alloy, and carbon steels.

Lab Construction Begins

Union Carbide Nuclear Co., a division of Union Carbide Corp., has awarded the general construction contract for its 85,000 sq ft nuclear and ore laboratories to Joseph L. Muscarelle Inc., Maywood, N. J.

Completion of the project, consisting of three buildings, is expected in mid-1959. The buildings will also be used by Union Carbide Ore Co. and Union Carbide Research Institute.

Acquires Hydraulic Firm

L&L Mfg. Co. acquired Birmingham Hydraulic Products Co. and renamed it Birmingham Hydraulics Inc. The firm will continue to make hydraulic equipment but has a new home: 8088 E. Nine Mile Rd., Van Dyke, Mich.

R&D Firm Expands

About 3000 sq ft will be added to the 7000 sq ft laboratory of Metal Research & Development Co., Scranton, Pa. A fabrication facility and a pilot plant utilizing metal powder rolling equipment will be installed in the addition, says Samuel Storchheim, president.

Surface Systems Begins

C. O. Fiedler Inc. of Los Angeles has formed a new division, Surface Systems.

It will handle barrel finishing equipment, media, and compounds. Golden Latshaw, former president of Hydromatic Metal Finishing Corp., Cleveland, is sales and technical director of the new division, which maintains a testing laboratory for new media development and customer service.

Subsidiary Is Renamed

Surveyor Service Co., Silver Spring, Md., a subsidiary of Crouse-Hinds Co. since 1956, has been renamed Crouse-Hinds Instrument Co. Inc.

President of the new company is Robert J. Sloan, also president of the parent firm, which makes mainly weather detecting and recording instruments. New products in the telemetering, supervisory control, and automation fields will be made,

cataloged, and sold through the Silver Spring facility.

Mohawk Steel Growing

Mohawk Steel Co. Inc., Albany, N. Y., is spending $650,000 on an expansion project at its Port of Albany location. Improvements include a 670-ft warehouse, two cranes, and a 1200-ft railway siding.

New Name for Gage Div.

Bryant Gage & Spindle Div., Bryant Chucking Grinder Co., has been renamed Bryant Computer Products Div. It designs and produces magnetic storage devices for computers.

Quest Foundry To Move

J. F. Quest Foundry Co., Minneapolis, will move into the Shakopee Foundry Co. plant in Shakopee, Minn., upon the sale of its present facility.

Zagar Builds Addition

Zagar Inc. is erecting a 10,000 sq ft addition to its plant at 24000 Lakeland Blvd., Cleveland 23, Ohio. In the July 28 issue of STEEL, the firm was inadvertently referred to as Zurga Inc. (The announcement was made by Frank Zurga, vice president.) The expansion provides a 50 per cent increase in office area and allows a closer integration of sales and engineering departments. Zagar Inc. makes gang drilling and tapping machines, multiple-spindle gearless drill heads, broaching machines, collets, and collet fixtures.

CONSOLIDATIONS

Underwood Corp., New York, acquired **Canoga Corp.**, Van Nuys, Calif., producer of missile range instrumentation and advanced radar systems. Paul H. Ryckoff was named president of the Canoga Div.

Dudek & Bock Spring Mfg. Co. purchased **Advance Spring Corp.** and will operate it as a division. Headquarters of both firms are in Chicago.

NEW PLANTS

Ceramic-Metal Assemblies Corp. is operating its new Latrobe, Pa., plant. The new company provides prototype and production quantities of ceramic-metal assemblies.

SPS Western, a division of Standard Pressed Steel Co., Jenkintown, Pa., is producing steel shop and office equipment and aircraft fasteners in its new $5-million plant at Santa Ana, Calif.

Pendleton Tool Industries Inc., Los Angeles, acquired a plant in Ft. Smith, Ark., for the manufacture of tool boxes by its subsidiary, Duplex Mfg. Corp. New machinery and equipment are being installed.

American Can Co. has opened a 90,000 sq ft facility, adjoining its Los Angeles plant, to shear steel and tin plate coils into standard sheets. Capacity is 90,000 tons a year. The installation is the sixth opened by Canco in the last 18 months and is part of its $31-million nationwide network of coil processing plants. Two others (in Hillside, N. J., and Houston) will be opened later this year.

Beryllium Corp. announces the opening of the nation's first integrated, privately owned beryllium fabrication plant at Hazleton, Pa., adjacent to its metal production plant. The only other complete beryllium fabrication plant was owned by the Atomic Energy Commission. Most of the new plant's output will go to the nuclear market, but experimental shapes for aircraft R&D will also be produced.

Esco Ltd., subsidiary of Electric Steel Foundry Co., Portland, Oreg., reports its new foundry in Port Coquitlam, B. C., is in full production. It will turn out ½ to 5000 lb alloy steel castings.

Highway Trailer Co., Edgerton, Wis., will lease a $1.2-million factory to be built by the Greater Hazleton Community-Area New Development Organization Inc., Hazleton, Pa.

Smith Corona-Marchant Inc. will begin construction this fall on a 150,000 sq ft plant near Cortland, N. Y. Elwyn C. Smith, president, says the plant will manufacture portable typewriter parts. Employment will be about 600.

International Tool Co., Dayton, Ohio, will build a 4200 sq ft plant in Hampton, S. C. It will be managed by Carl F. Kohl. Completion is scheduled for Oct. 1. Estimated cost: $40,000.

Garratt Aircraft Ltd. is constructing a 20,000 sq ft plant at Toronto, Ont. The firm makes aircraft frame components.

NEW OFFICES

Kaiser Steel Corp., Oakland, Calif., opened a district sales office in Houston. Robert E. Brown is in charge.

NEW ADDRESSES

U. S. Steel Supply Div., U. S. Steel Corp., moved its Chicago warehouse operations to larger quarters at 13535 S. Torrence Ave. William J. Borwick is the district manager.

Meteor Mfg. Corp., formerly of Buffalo, has moved its factory and offices to larger facilities at Emporium, Pa.

Eagle-Picher Co.'s zinc metal sales department has been moved from Miami, Okla., to the company's general offices in the American Bldg., Cincinnati.

Pennsalt Chemicals Corp., Philadelphia, moved its Pittsburgh regional office for industrial chemicals to Natrona, Pa. John C. Hampson is regional manager in charge of sales activities for Pennsalt organic and inorganic chemicals. Sales, research, and development units of the Corrosion Engineering Products Dept. also were moved to Natrona.

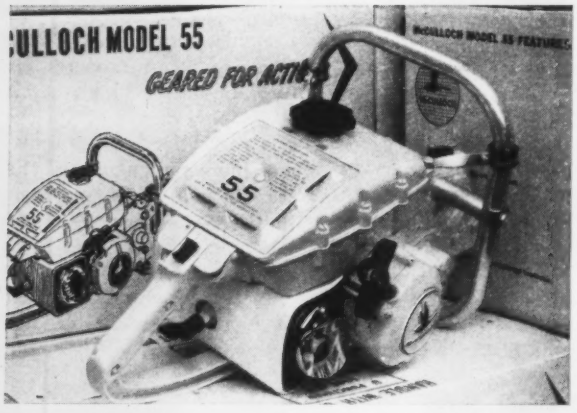
Navan Products Inc., subsidiary of North American Aviation Inc., Santa Monica, Calif., is moving its general offices to 900 N. Sepulveda Blvd., Los Angeles 45, Calif.

"We switched over to Columbia-within the first 22 weeks

says Mr. Bernard Rosebrough
Plant Engineering Project Coordinator
McCulloch Corporation
Los Angeles 45, California

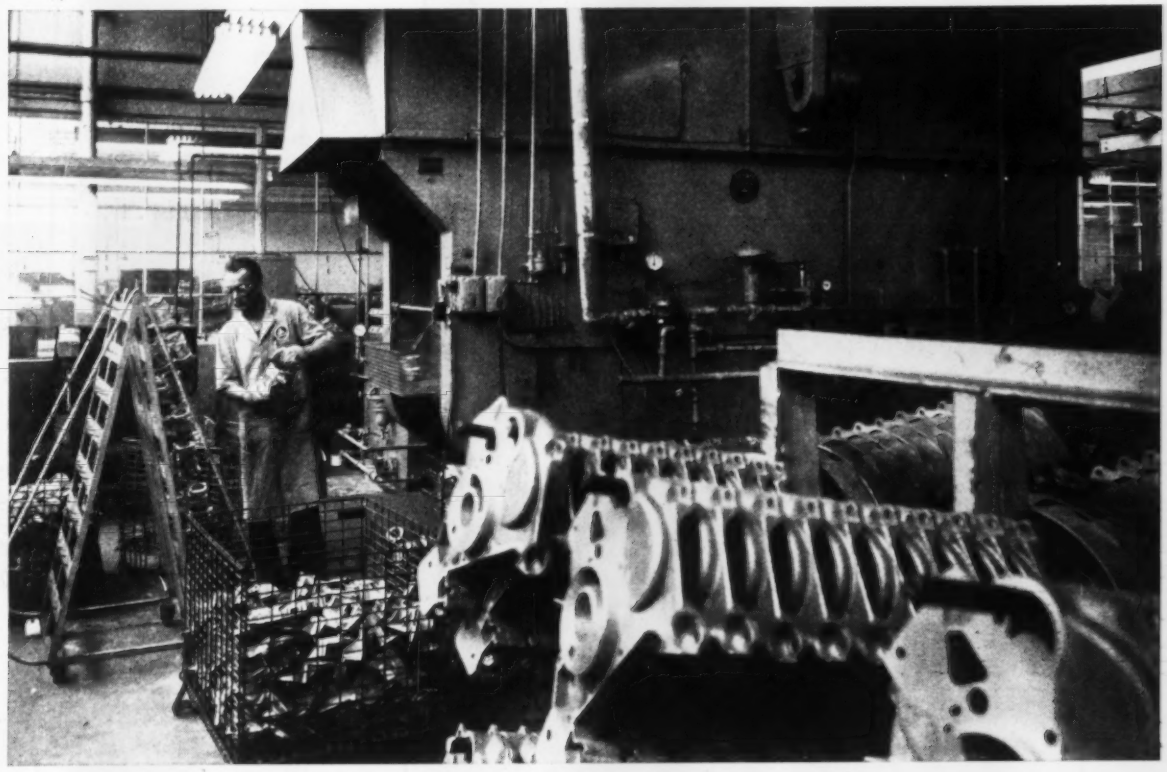
"We'd tried four other degreasing solvents, so I have a real basis for comparison. For example, within 22 weeks after putting in Columbia-Southern Trichlorethylene, we'd cleaned out each of our six units just once. With all the other solvents used, our degreasers needed cleanout and fresh solvent every three weeks. We now make one changeover, instead of eight for the same period. Our net savings on man-hours for maintenance alone, without counting loss of production, added up to $2,100.

"Here's the plant, at 6101 West Century Boulevard. We produce our own line of McCulloch Chain Saws, Scott-Atwater Outboard Motors, Superchargers for custom cars, and four-cylinder drone engines for military target ships.



"This is the Model 55, one of our most popular chain saws. We run magnesium, aluminum and steel parts through the degreasers in producing all of our saws and other products. That's one reason why we insist on high solvent uniformity and purity.

Southern Trichlor and saved $2,100 just on maintenance costs alone!"



"Here's the 'big boy' of our six degreasing units. It's part of our sub-assembly operation. You can imagine what happens to production when it's shut down for cleanout. Figure two men for 16 hours to do a complete drain, clean, refill—see why I like a solvent that keeps a degreaser like this in action? Another big point. A year ago we had a fire in this unit that caused more than $6,000 damage. We believe that Columbia-Southern Trichlorethylene's stability makes it a safer solvent, and reduces fire hazard to a minimum.

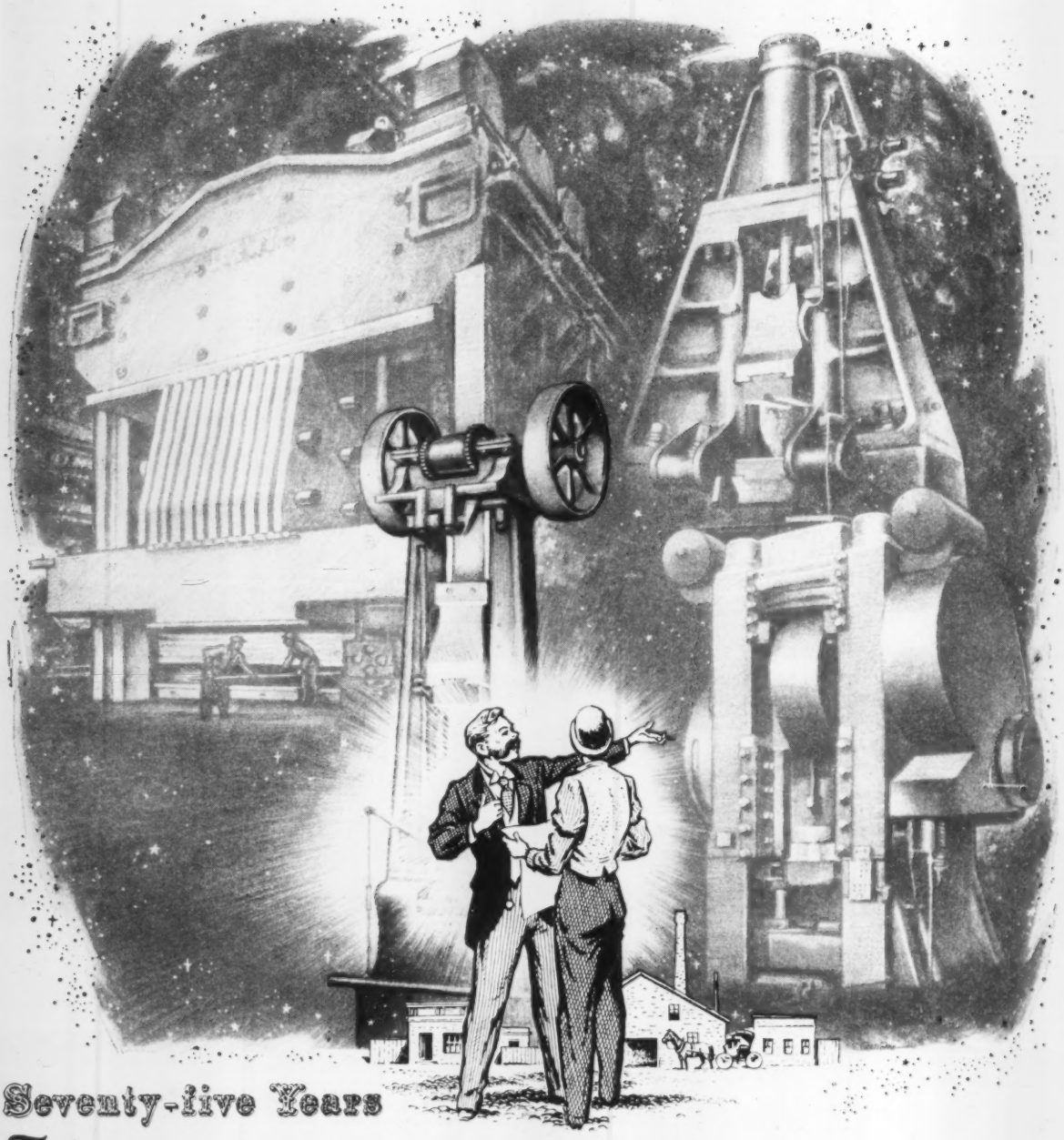
"Look like I'm sold on one particular solvent? Well, how about this: Columbia-Southern's Trichlor lets us operate our units ten degrees higher than we felt safe in going with any other solvent tested here. You know what this means: more contaminant saturation, faster cleaning, less solvent used. And I like the dependable delivery and good servicing the jobber and Columbia-Southern's District Sales Office provide."

For more information, contact our Pittsburgh address or any of the fourteen Columbia-Southern District Sales Offices

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

A Subsidiary of Pittsburgh Plate Glass Company

One Gateway Center, Pittsburgh 22, Pennsylvania DISTRICT OFFICES: Cincinnati, Charlotte, Chicago, Cleveland, Boston, New York, St. Louis, Minneapolis, New Orleans, Dallas, Houston, Pittsburgh, Philadelphia, San Francisco IN CANADA: Standard Chemical Limited



Seventy-five Years

THERE WAS a growing surplus in the United States Treasury—the Polygamy Act was passed—letter postage was reduced from three cents to two cents—the Brooklyn Bridge was opened—standard time was adopted—in 1883, when two young men, just graduated from Worcester Polytechnic Institute, established the business bearing their names—WYMAN-GORDON. The total capital was $27,000.

Integrity, initiative, ambition and ability were theirs. Endowed with these qualities and privileged to operate under that unique American system of free, private, competitive enterprise the Company prospered and grew.

On this our 75th anniversary, we salute the spirit of our founders and we pledge our every effort to help preserve, against the steady erosion of the last quarter century, that system which has made our nation what it is today and which has enabled us to build the greatest industrial production in the world, resulting in the highest standards for all segments of our people.

WYMAN-GORDON COMPANY

ESTABLISHED 1883

FORGINGS OF ALUMINUM • MAGNESIUM • STEEL • TITANIUM

HARVEY, ILLINOIS | WORCESTER 1, MASSACHUSETTS | DETROIT, MICHIGAN

Technical Outlook

PULLING FOR WORK HORSES—Clyde Williams, president of Clyde Williams & Co., Columbus, Ohio, predicts that the demand for some high temperature metals will double or triple in the next seven years. Delivering the Horace W. Gillett Lecture at the annual ASTM meeting in Boston he described cobalt, columbium, chromium, molybdenum, nickel, and tungsten as the work horses of the high temperature age.

STRONGER NAILING—Plywood sheathing in house construction can be fastened better with short, thick, threaded nails than with long wire nails, says Virginia Polytechnic Institute. In diaphragm sheathing construction, wire nails lose holding power and pop out, explains the institute. Threaded nails won't pop, transmit greater shear load, won't bend, and drive harder and faster.

SOIL NET—Wire poultry netting (40,000 lb of it) is keeping newly seeded hillsides around the Air Force Academy near Colorado Springs, Colo., from washing out. When the grass grows, the netting will be left in place to hold the soil against the damage of prolonged rains. The job will take over 2 million sq ft of netting.

HOTTER FLAME—Flame temperatures of 3450° F are produced by a high-velocity burner marketed by E. W. Bliss Co., Canton, Ohio. Burning either fuel oil or natural gas, the Bliss Radiant Burner produces a pulsating, luminous flame. Fuel savings are said to range from 12 to 30 per cent; flue gas is clean without soot or carbon monoxide.

HOW RADIOACTIVITY SERVES—Here are some of the ways you can benefit: 1. It traces minute quantities of undesirable elements in metal compositions. 2. It measures tiny amounts of additives. 3. It helps you develop products from materials available as low concentrates. 4. It aids the analysis of elements that are hard to find and detect. (You don't need to use complex laboratory techniques.) 5. It assists in deciding the feasibility of recovering the valuable trace metals in ores, minerals, effluents, and other waste products.

LIGHTER, BETTER INSULATION—Johns-Manville researchers recently came up with a tough plastic-asbestos combination which contains a lot of tiny porous particles. It works for long periods at 1300° F and is 50 per cent more effective at 50,000 ft. Other specs: Tensile, 34,500 psi; weight, 106 lb per cubic foot; minimum thickness, 0.010 in. The firm looks for industrial as well as missile applications.

ALUMINUM UPS PAYLOAD—Weight savings gained with a new aluminum bottom dump trailer, built by Schetky Equipment Corp., Portland, Oreg., will permit carriers in that area to earn $1.25 more a yard-hour. It's constructed of welded Kaiser alloy 5086 sheets and plates. A steel trailer of the same volume is 2000 lb or more heavier.

SUGGESTS STAINLESS USES—A major producer says stainless bars and wire can upgrade your profits three ways: 1. The metal increases beauty or improves resistance to corrosion, heat, stress, impact, or wear. 2. Stainless from stock may be cheaper than some special alloys for regular production items. (Some grades are made to boost machining speeds.) 3. "Made of stainless" can be a big selling point.

INCO'S NEW NICKEL PROCESS—Instead of a metal anode, the method reduces a nickel matte (an artificial sulfide) by direct electrolysis. It eliminates high temperature oxidation and reduction and increases the percentage of metal recovery. The company used to get 12 metals from the ore with the old process. The new one recovers two more: Large amounts of selenium and sulfur.

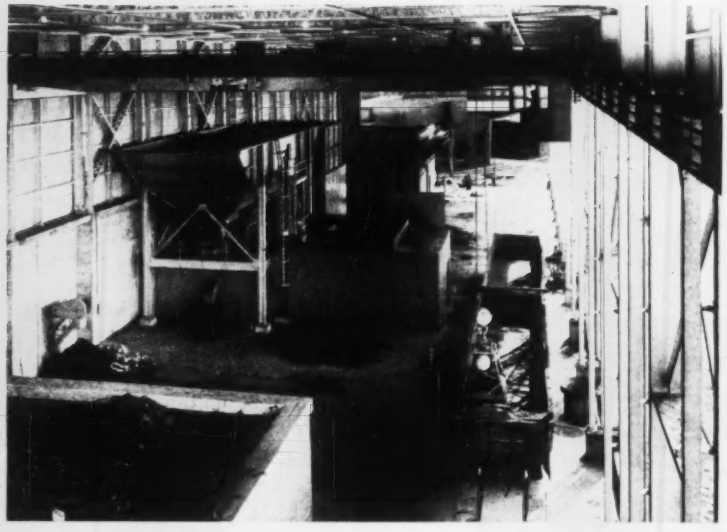
PROPOSES TEST CHANGE—Replacing the standard "V" with a cylindrical notch of 0.5-in. radius is a more effective way to measure toughness, says Crucible Steel Co. of America, Pittsburgh. Advantage: Greater spread of impact values without change of apparatus.

Metalworking Outlook—Page 21 Market Outlook—Page 95

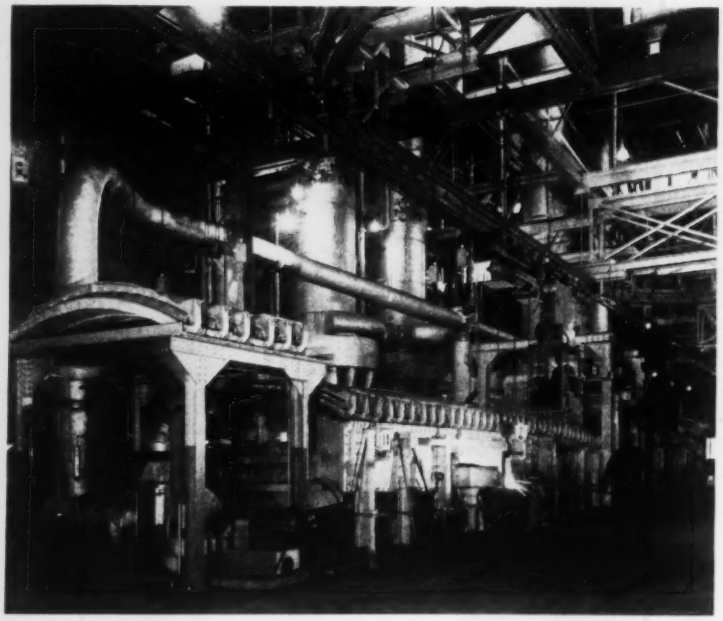
Link-Belt's Foundry: Picture of Efficiency

THE highly mechanized, malleable iron foundry at Link-Belt Co.'s Ewart Plant in Indianapolis is an example of what a foundry equipment specialist chooses when it builds its own facilities.

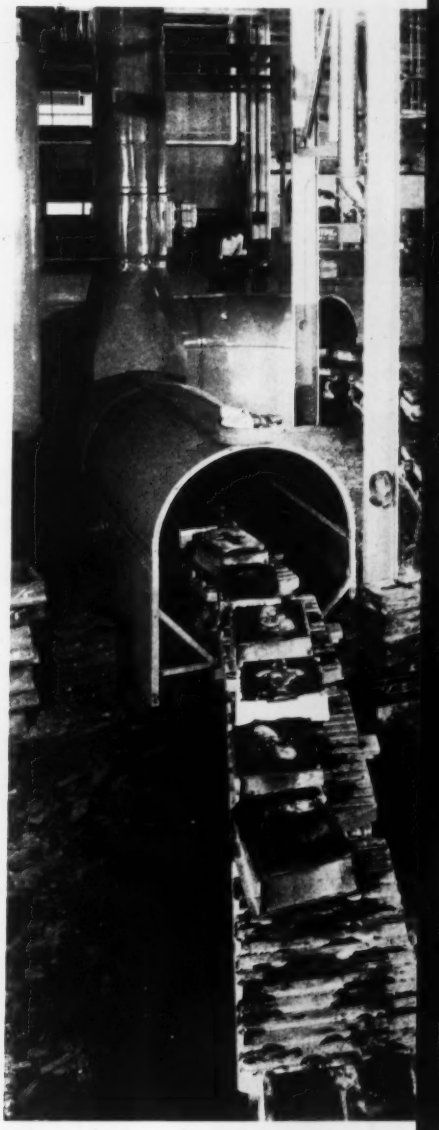
The foundry has five molding lines. They are equipped to handle molds for special jobs in limited quantity, small jobs semicontinuously, and production jobs continuously. Automatic shell molding machines



Storage and charging yard at Link-Belt's new foundry is housed in a steel frame building. At one end is a concrete bin for coke; at the opposite end is a bin for scrap iron. In the center are coke and limestone hoppers



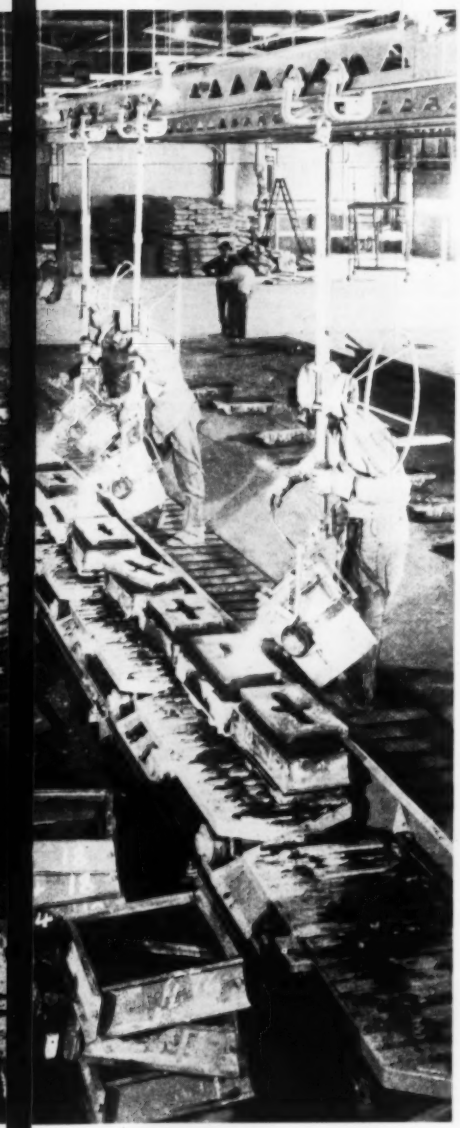
Duplex melting system includes two, 54-in. cupolas and two, 30-ton air furnaces. Metal enters furnace at 2700° F, is tapped into ladle at 2950° F



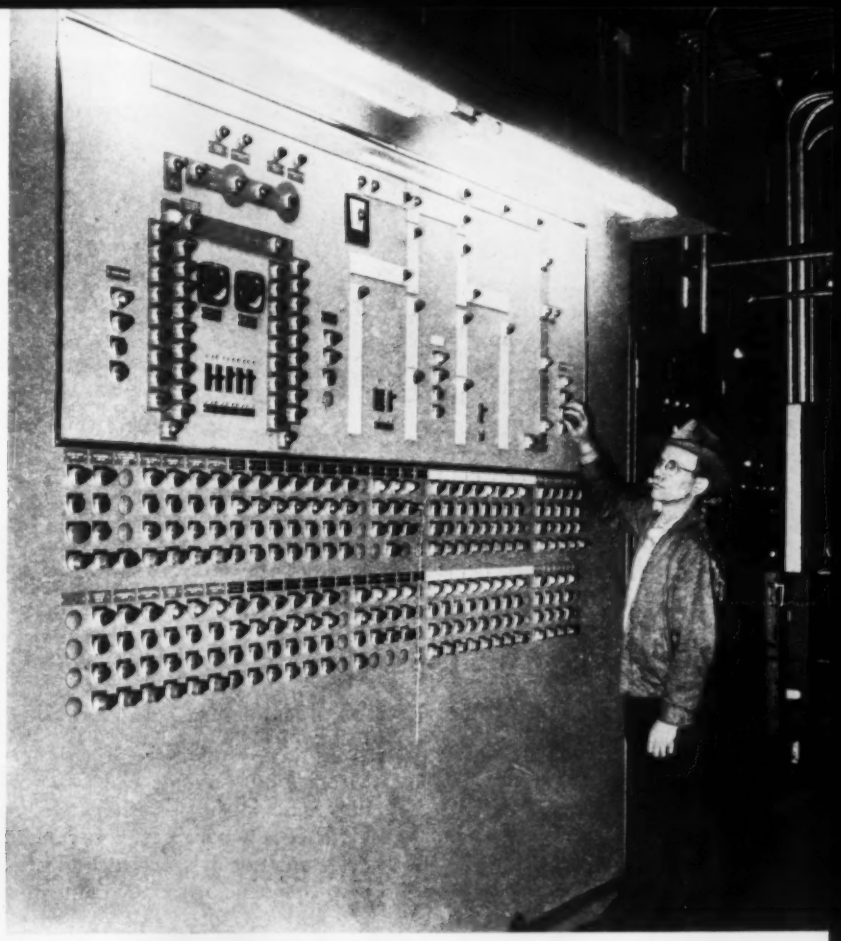
Three men pour molds on the move. They stand on a platform-type conveyor and pour molds on a conveyor whose travel and speed are the

provide the speed for high production work. Flow of products, from raw materials to finished castings, is arranged in a straight line to assure maximum efficiency at each level of production.

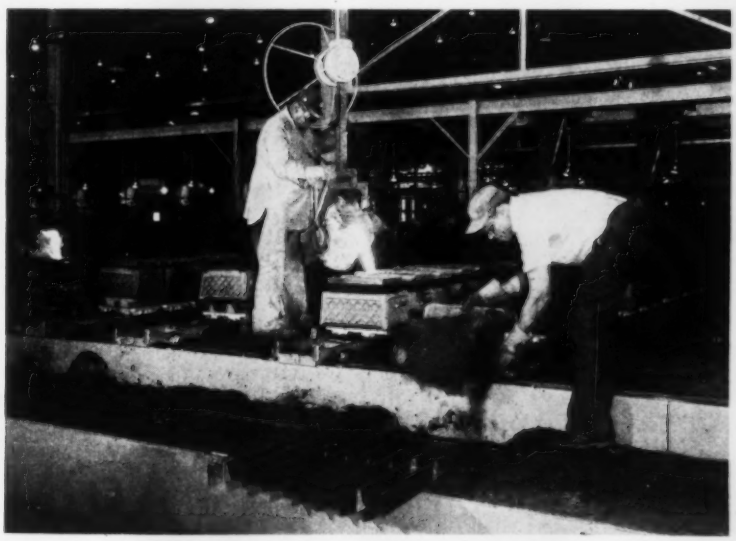
Jobs scheduled include malleable and pearlitic detachable chain links, gears, sprockets, buckets, conveyor parts, and other castings needed for Link-Belt's handling and power transmission equipment.



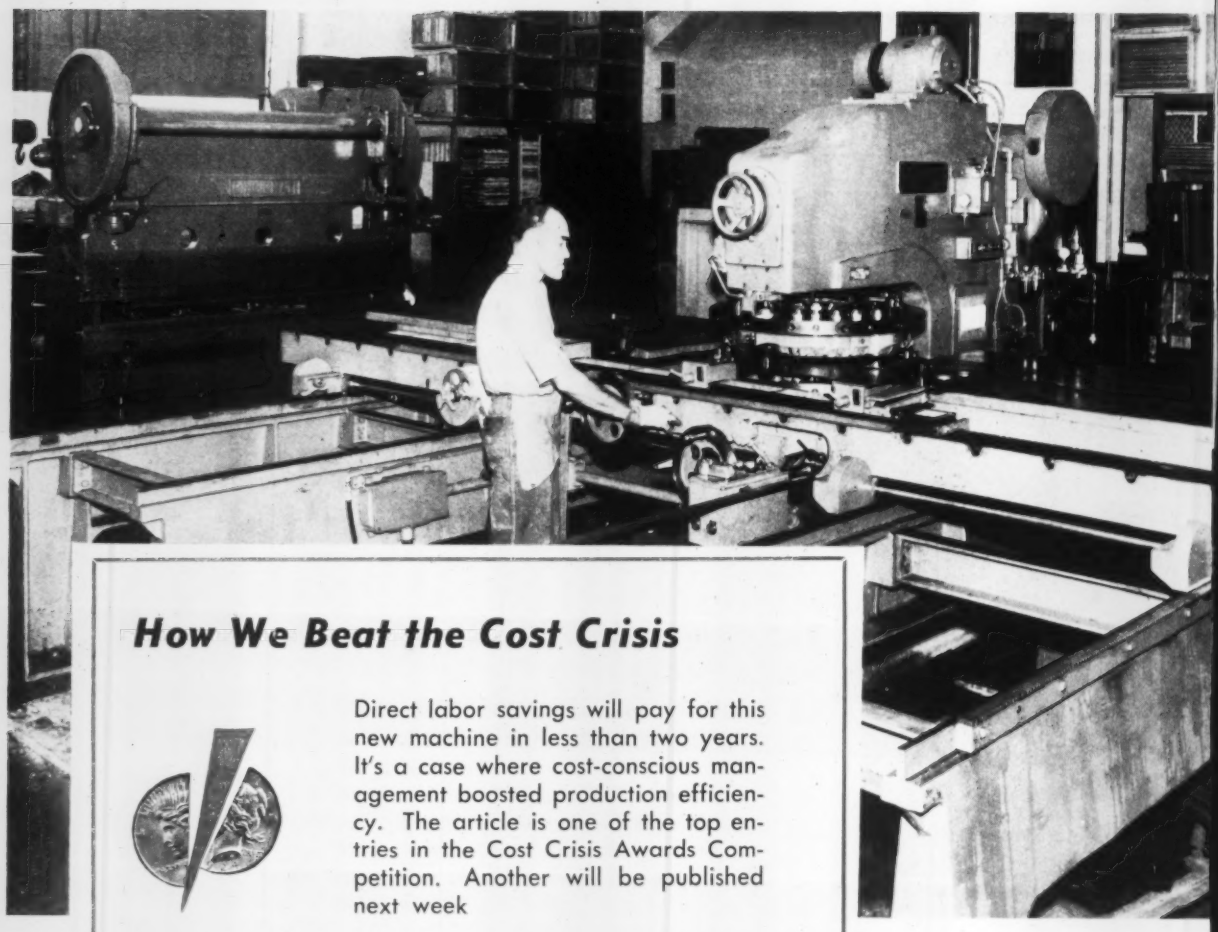
same as the one they are standing on. A short section of exhaust tunnel beyond the pouring zone exhausts hot gases and fumes from the molds



One of two central panels controlling all phases of green sand molding from automatic preparation of sand to returning of sprue to yard area. The panel also controls the dust collection system, building heating, and ventilation



After pouring and cooling, molds and castings are discharged onto an oscillating conveyor running under the floor which in turn discharges to a vibrating shakeout screen that separates castings from sand. Certain types of castings are dumped onto the grating and separated from the sand at this point



How We Beat the Cost Crisis

Direct labor savings will pay for this new machine in less than two years. It's a case where cost-conscious management boosted production efficiency. The article is one of the top entries in the Cost Crisis Awards Competition. Another will be published next week

One Turret Punch Press Saves

CONTROL PANELS for electronic and magnetic systems were production headaches at the Control Div., Reliance Electric & Engineering Co., Cleveland. They, and similar operator's panels, had to be tailored for each order.

Here's the way Reliance production men had to make them:

First, different sized panels were sheared, notched, and formed, then laid away in inventory.

Second, when an order was received, a panel that most closely resembled the part was pulled from inventory.

Third, the stock panel was indicated for modification and drilled to final part layout.

The Problem—William J. Nemeth, methods engineer, lists these as the needed cost-trimming steps: 1. Eliminate inventory panels that didn't meet order requirements. 2. Replace hand operations (layout and drilling) with more rapid machine operations. 3. Reduce the time taken in engineering and production departments to get manufacturing data for the shop.

Reliance engineers proposed a 40-ton, direct reading turret press made by Wiedemann Machine Co., Philadelphia.

The Solution—Now, panels are tailored to each order—there is no

What It Saved:

- **57%** in direct labor on control panel production
- **78%** in direct labor on operator's panels
- **26%** in cost of parts previously purchased
- **84** hours per month of engineering time spent specifying and revising
- **23** hours a month in recording inventories and added rate setting

NEW METHOD

1. Shear.
2. Pierce all holes and notch.
3. Form.
4. Weld.
5. Paint with finish coats.
6. Forward panel to assembly.

OLD METHOD

1. Shear
2. Lay out for corner notches and mounting holes.
3. Notch corners and pierce mounting holes.
4. Form.
5. Weld.
6. Paint with prime coat.
7. Place material in stock.

   At this point the shop order was returned to material control to show that the part was in stock. When an order was received for a specific panel:
8. The panel was removed from stock.
9. Lay out for modification.
10. Drill or otherwise modify.
11. Deburr.
12. Paint with finish coats.
13. Forward panel to assembly.

$2252.68 a Month

preforming or panel inventory. Panel size and configuration are specified, and the information is put on a chart. The information (it's calculated on accounting machines) tells the operator the readings to set on the two graduated handwheels that control the press table.

After he has positioned the table, the operator indexes the turret to put the proper tool in position (also indicated on the chart) and fires the punch. The variety of tools permits the press to pierce 0.093 to 3.0 in. holes in $\frac{1}{4}$-in. plate, or to 6 in. holes in $\frac{1}{8}$-in. sheets.

The only setup consists of mounting the tools called for in the punching chart. One panel that used to have a direct labor charge of $18.74, now costs $5.85.

Gains—The total investment for the press installation was $47,320.49. An audit on the operation after the machine was in full production showed that the equipment will be amortized in 1.8 years.

In addition, tabular drawings for stock panels (there used to be about 30) have been eliminated. Inventory of partially finished panels, and all associated records, are gone. So are the sometimes tedious bookkeeping and manufacturing steps for panel modification.

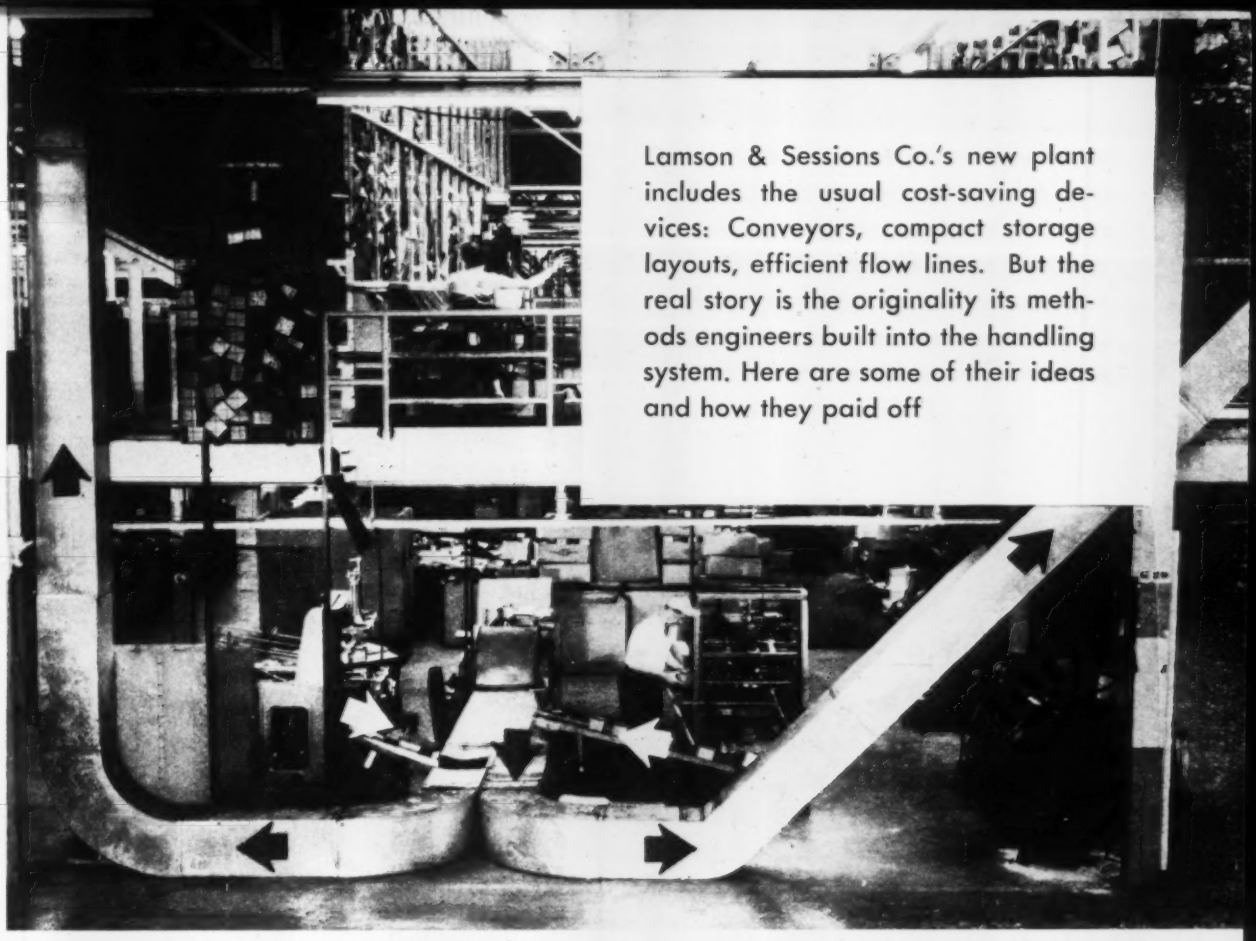
Where several identical panels are to be made, the punching charts can be re-used. Before, each panel had to be laid out individually. Additional capacity on the press let Reliance make some sheet metal parts that had been subcontracted.

Mr. Nemeth also says that the quality of the product is improved. Accuracy of the press gives better hole location, eliminating some knotty alignment problems. The blanked holes look better than their hand-finished predecessors.

Six Ways To Save Handling

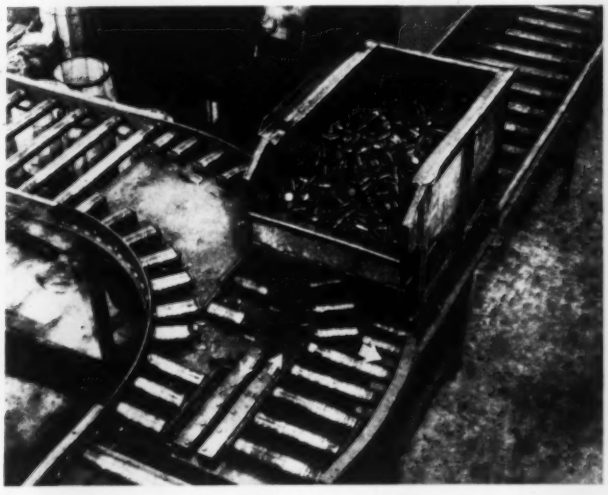
These racks with roller conveyors for shelves handle odd lots easily, cutting packing costs more than 50 per cent. Lamson & Sessions used to break open full cartons to fill such orders. The lift truck is battery powered. The operator controls the device from the platform

A metering device plus a horseshoe-shaped layout doubles this washer's capacity without an increase in the work force. Full bins start at the left and are upended at (1). Parts fall onto a variable speed conveyor belt which feeds the parts slowly and evenly to the hot alkaline wash. Upended bins are washed at the same time, emerging from a separate compartment at the far end. Conveyors take parts and bins to operator at scale. A revolving section of roller conveyor routes full bins to packing or heat treating



Lamson & Sessions Co.'s new plant includes the usual cost-saving devices: Conveyors, compact storage layouts, efficient flow lines. But the real story is the originality its methods engineers built into the handling system. Here are some of their ideas and how they paid off

This two story, carton making setup cut handling labor 75 per cent, says H. G. Robinson, a Lamson & Sessions engineer, who designed the system to eliminate hand gluing and labeling. Boxes start in the assembling machines (ground floor) and drop from the conveyor into duct openings. Air at ordinary ventilating pressure carries boxes to the top of bins. (To sort them, each has a shutter operated from ground level.) Girls operate printing presses which move from bin to bin on a track. Labels are printed directly on boxes. Each letter or character is held by a magnetized backing plate. Combinations are easily changed and a small type inventory is adequate for more than 8000 parts. (Construction note: Blower and ductwork were supplied by a local sheet metal contractor)

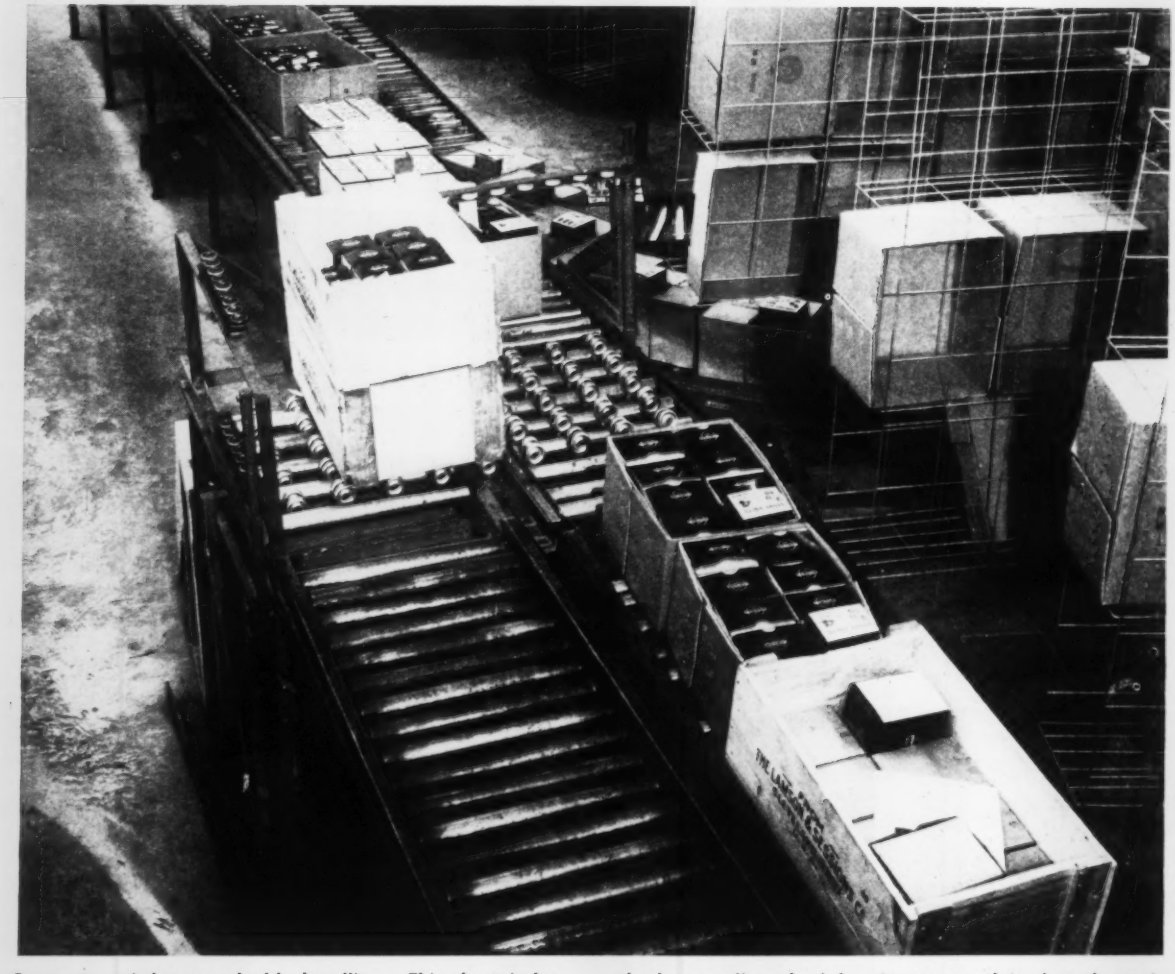


Conveyor switch designed by Lamson engineers works exceptionally well. It's part of a conveyor that does the work formerly done by three lift trucks. The outer rail (see arrows) moves while the inside bearings of the rollers shift to align them with bin direction. (Conveyor people at first told Mr. Robinson the design was too radical to be successful)

(Please turn to Page 66)

Handling

Excavator is used as unloader. Lamson used to unload coils of rods with a hoist on an A-frame. Another man had to assist the operator by manipulating the hook in tight corners. Average unloading time: 1½ hours. This Gradall fitted with a hook cut that to 30 minutes. It easily reaches into tight corners without assistance



Crossover switch saves double handling. This shunt is hydraulically powered, electrically controlled. Boxes headed for storage are piled two high. When they reach the first control bar, "roller skates" rise between the openings and the boxes roll to the left. As soon as they clear the main line and push the second bar, the "roller skates" lower and the boxes continue toward the storage area. They are held in area shown on Page 64

The New

COFFING Quik Lift

COIL CHAIN ELECTRIC HOIST

"Pistol Grip" push-button station permits easier handling of loads

Without shifting his grip, an operator can depress the up-down buttons of the "Pistol Grip" push-button station and at the same time pull a trolley mounted hoist along the beam to another position—a strain cable is incorporated in the control cord.

Convenience is coupled with safety, since the push-button station is made of non-conducting, impact resistant plastic; the push-buttons are mechanically interlocked; and the control circuit is limited to 115 volts, regardless of hoist voltage.

Coffing Quik-Lift hoists are available in 20 models ranging from ¼ to 2 tons in capacity. Aluminum housings make them lightweight and easily portable, yet strong and durable. Special features include instantaneously releasing magnetic-type brakes, five-pocket load sheaves for reduced chain wear, and simplified wiring systems which permit motor voltage changes by shifting only seven quick connect terminals.

The new Coffing Quik-Lifts are the outstanding hoists in their size range from the standpoints of convenience, durability and economy. For details, consult your Coffing distributor, or write for Catalog ADH-65.

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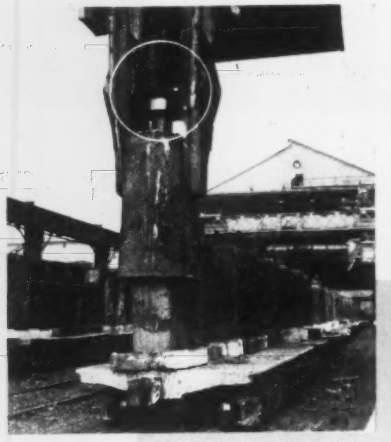
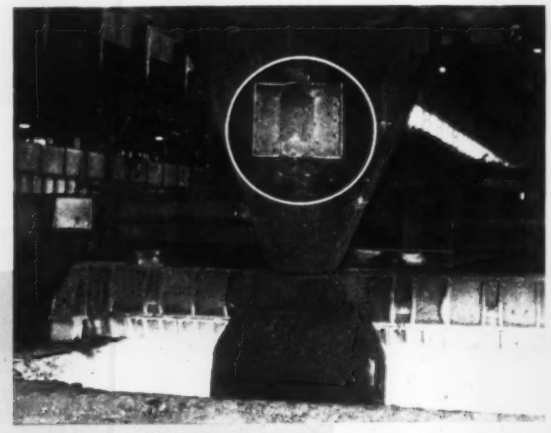


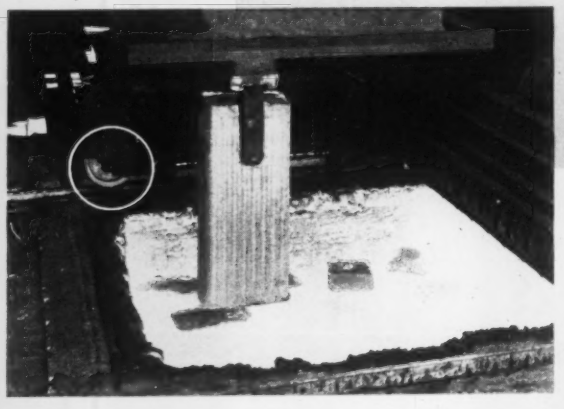
Stripper screw



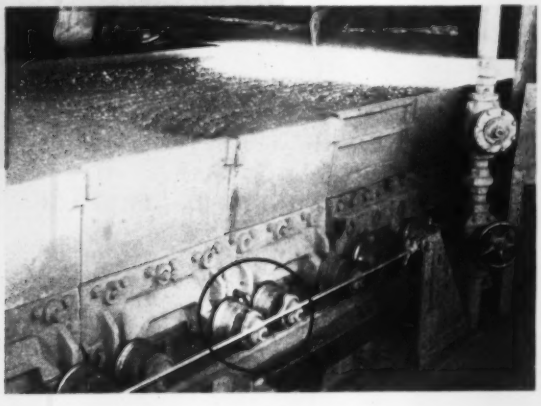
Crane turnaround gear

At TCI, multipurpose grease helps keep these hot spots operating

Soaking pit cover



Sintering pallet wheels



Mill Saves with Multipurpose Grease

Tests at Tennessee Coal & Iron Div., U. S. Steel, plants show longer life and simplified lubrication for parts operated in high temperatures can be obtained with microgels

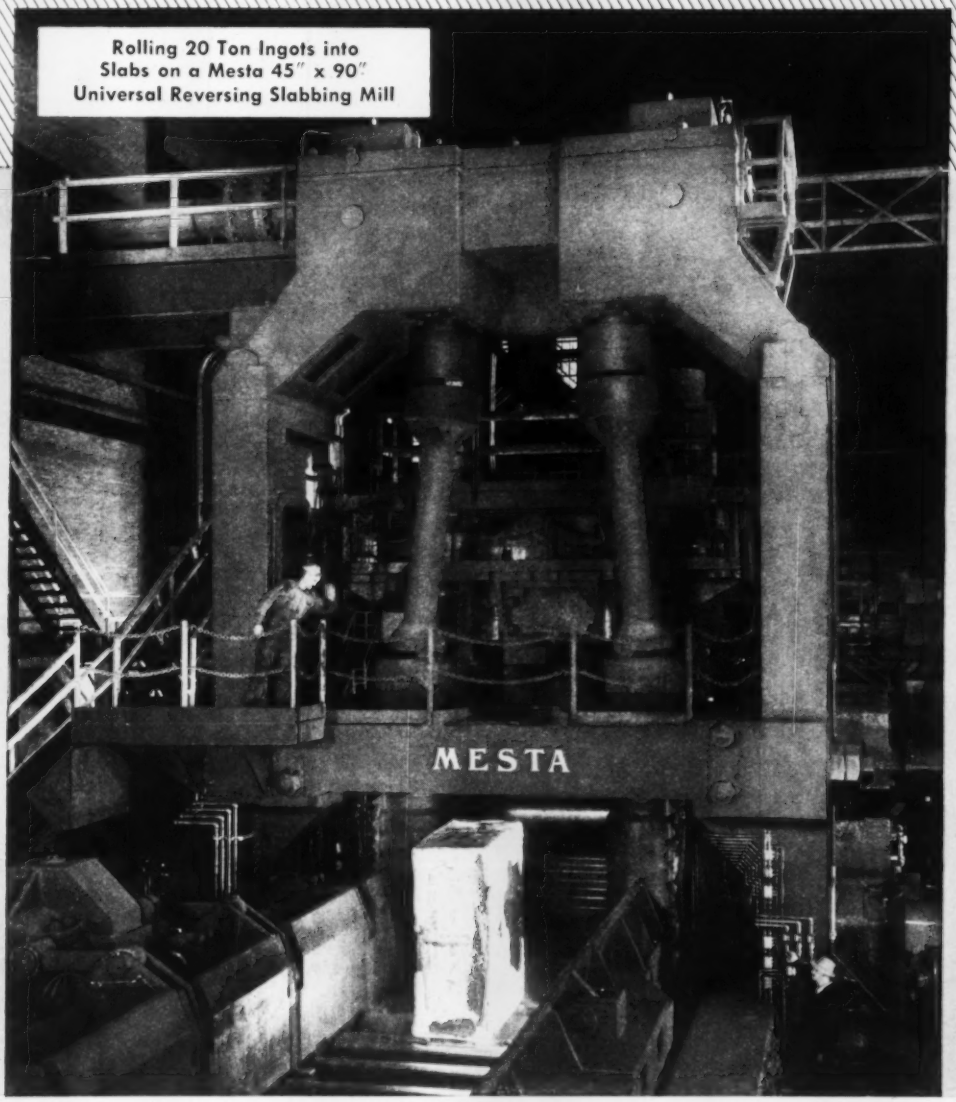
IN ANY STEEL MILL, high operating temperatures, dust, and water can attack bearing and gear lubricants to a point where they are no longer serviceable. Downtime increases; replacement of parts becomes more frequent; and maintenance costs mount.

Steel companies have tried to guard against lubricant failure by using many types of oils and greases. Each is selected to satisfy a particular lubrication need. But such an approach means that large quantities of lubricants have to be stockpiled.

Engineers at the Tennessee Coal & Iron Div. of U. S. Steel Corp. have been investigating microgel type multipurpose greases as a solution to this stockpiling problem. These greases incorporate several desirable characteristics into a single

SLABBING MILLS

Designed and Built by MESTA



Rolling 20 Ton Ingots into Slabs on a Mesta 45" x 90" Universal Reversing Slabbing Mill

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Man's Eternal Struggle with the Machine

BUSINESS IS UNUSUALLY COMPETITIVE TODAY AS OPERATING COSTS ARE RISING AND PROFITS SHRINKING

Did you ever meet a vendor who wouldn't sell you the equipment you wanted?

Just "meeting" such a vendor is not enough.

If you haven't *always had* vendors who refuse to supply unsuitable equipment, you've been getting something you don't need.

If you haven't *always had* vendors who are dedicated to advancing your manufacturing technology, you're getting less than you *must* have.

Your responsibility for devising production processes and selecting equipment is greater than ever. You no longer have time to "hand-feed" any equipment builder's design and manufacturing operations.

Yet, you can't afford to install anything other than what is right. Because, if your production methods aren't keeping pace with your competitors', you're already starting to go out of business.

Sciaky knows these facts of business life. To Sciaky, it is obv.ous that the cost of always having to make *new sales to new customers* is far greater than the cost of a long term relationship of trust based on fulfilling your requirements. That's why Sciaky refuses to sell resistance welding and production equipment which is unsuitable for the user's needs.

Why take less than the full advantage of consulting with a Sciaky Application Engineer the next time you are considering equipment. No obligation, of course.

Many manufacturers are taking that advantage. As a result, men just like you are enjoying the full vendor support necessary to steadily improving their company's manufacturing operations. When Sciaky analysis of their requirements sometimes indicates that Sciaky equipment is not suitable, the recommendation for "no change" is immediate. Thus, Sciaky builds the foundation of trust necessary to your success.

The bulletin, "Resistance Welding At Work" contains many factual descriptions of interesting applications of the Sciaky technique. Write and advise of your field of interest.

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MULTIPURPOSE GREASE . . .

lubricant. One such grease (Shell Oil Co.'s Darina 2) has been used to advantage for over six months at two facilities in Fairfield, Ala.

What Are They?—Multipurpose greases, such as Darina 2, are microgel (or inorganic nonsoap thickened) lubricants which are insensitive to high temperatures and have no dropping point.

Microgels are equal to lithium-base greases in low temperature characteristics, corrosion protection, and oxidation stability. They surpass them in high temperature mechanical stability, water resistance, and water absorption characteristics. A temperature of 450° F is considered a reasonable maximum limit for microgel type multipurpose greases.

Here are some of the places in which these lubricants are being tried at TC&I.

Screw Vulnerable — The 200-ton capacity stripper crane at the Fairfield Works has a ram powered by a 15-ft screw which works directly over the ingot. Both the screw and its nut are subjected to high heat.

Keeping the nut and screw well lubricated was difficult because the light, leaded gear oil would melt and drain out. Since there was no way to pump the oil back, the screw froze frequently.

Grease Makes Seal — The problem was overcome by packing the bottom of the ram housing with the multipurpose grease, then pouring in leaded gear oil. The high temperature grease acts as a seal and prevents the lighter oil from falling through the nut.

The method has resulted in lubricant savings of almost 30 gallons weekly for the stripper crane alone. Twice weekly, 1¼ gallons of the grease and the same amount of oil are added. Before, more than 5 gallons of the oil alone were required each day.

Soaking Pits Critical—Ingots are charged into 17 rows of soaking pits. Depending on the type of steel and the temperature of the ingots, it usually takes from 2 to 6 hours to bring them to rolling temperature.

The pit covers, which ride on rails mounted on the pit roof, are lubrication trouble points in this area. Each cover has two gear driven wheels and two idler wheels. The wheels are constantly exposed to some soaking pit heat. (How much depends on how well the covers fit.) Many times a day they are exposed to the full heat as the covers are rolled back for checking temperatures, charging, and removing ingots.

Grease Saves Wheels—High pit heat caused bearing burnout and made it necessary to replace four or more cover wheels weekly. The conventional grease melted and ran out on the floor. After the multipurpose grease was substituted, wheel changes averaged about one every two months.

Wheels are greased daily, but the period will probably be extended by days, even to a week, as the safe life of the grease is determined. The lubricant is pumped with a handgun into the gear housing until the grease comes out around the axle. This lubricates the wheel bearings and bearings on the gear drive lineshaft.

The maintenance crew has already noticed a sharp reduction in the volume of grease needed for each charge: One or two strokes with the gun, vs. four formerly.

Heat Dries Gear—A soaking pit crane is equipped with a turnaround gear at the bottom of the tong housing. The gear permits the tong to revolve 360 degrees when it is lowered into the soaking pit.

At times, as when making the pit bottom, the end of the tong must reach to the bottom of the pit where the temperature is well over 2500° F. A high temperature grease is important in extending the service life of gears which can be lubricated only when they are changed.

Conventional greases usually burned out quickly. The dry gears could not tolerate the rapid forward and reverse motion of the crane controller, and stripped gear teeth made frequent replacement necessary.

Gear Packing Holds—The practice now at TC&I is to pack the gear cavity with the multipurpose grease and cover the mechanism with a steel plate.

One charge is considered enough to last until the gear has to be changed, which averages once a month because of normal wear. When changing gears, it is common to find the housing still well packed with grease.

Stop Bearing Leakage—The multipurpose grease has also proved effective in the sintering plant, primarily because its nonmelting characteristics eliminate bearing leakage at elevated temperatures.

At TC&I the three sintering machines are operated 20 turns a week, with one turn a week for maintenance. As the sinter burns, the pallets, wheels, and bearings are exposed to temperatures near 170° F.

The combination of high heat, abrasive dust, and water makes it difficult to keep the 648 wheels well lubricated.

Cost Cut—Seals sometimes burn out and wheels freeze. If the lack of lubrication is spotted in time, the pallet can be pulled off and the bearing replaced at a cost of $5 each. But if a bearing freezes and a wreck occurs, it can ruin up to four pallets (replacement cost, $500).

Maintenance costs on the sintering machines have been sharply reduced by using the multipurpose grease. It is resistant to high ambient temperatures and provides a grease seal around the hubs, keeping dust and dirt out of the antifriction bearings.

Formerly, each wheel was lubricated at least twice a week. Now the lubricating cycle has been extended to once every three months.

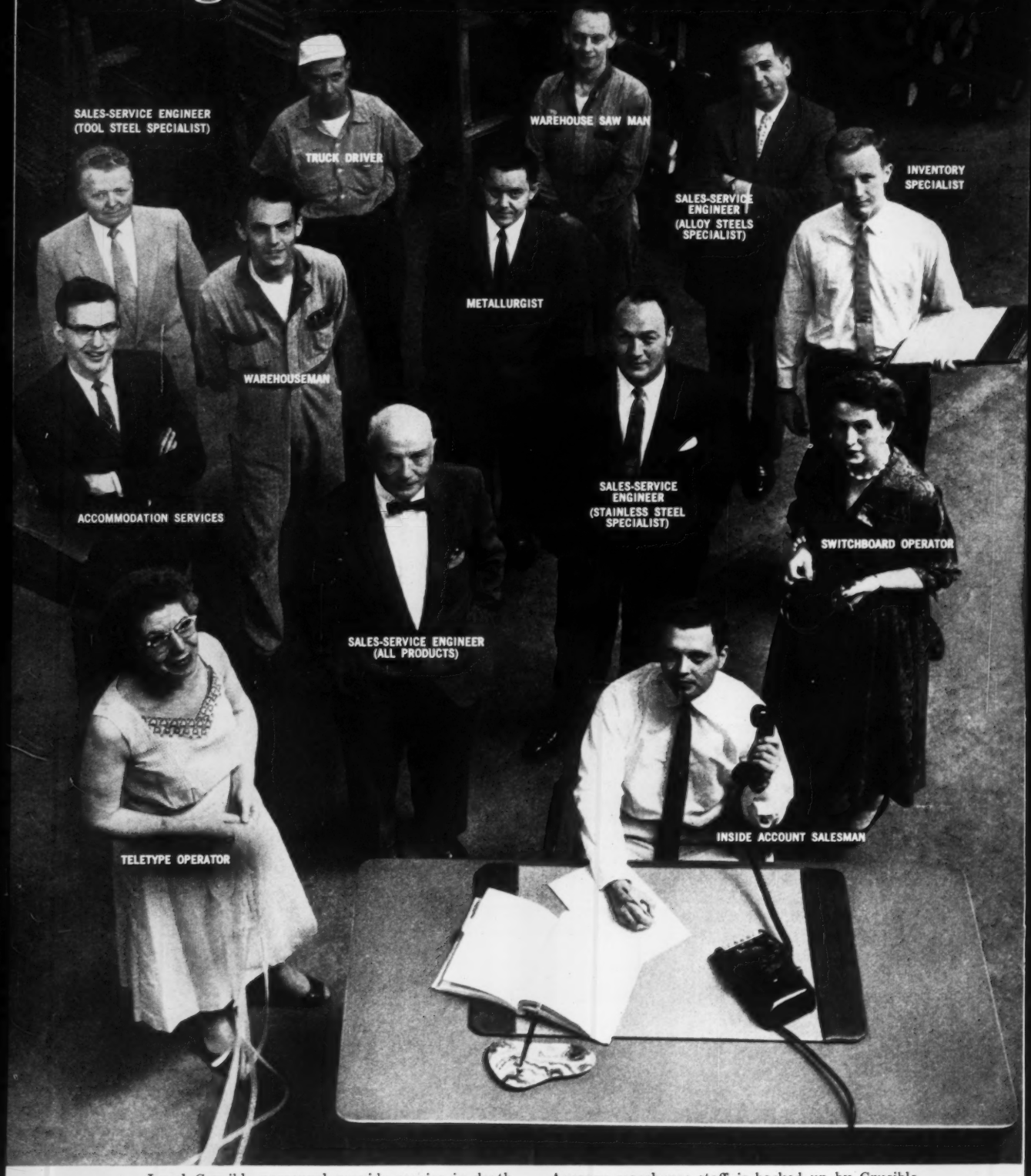
The period has been established as the maximum lubrication interval, but the equipment is checked constantly to assure that no wheels run dry.

Zirconium Rolled Ultrathin

American Silver Co., Flushing, N. Y., is rolling zirconium strip as thin as 0.0008 in. for use in new miniature photoflash bulbs. The small quantity of metal produces the same light output as larger bulbs because of the high burning efficiency of zirconium, although the miniatures are only one-quarter the size of conventional bulbs.

Extremely tight tolerances are necessary in production of the strip. Variations in thickness change the time interval from initial ignition to flash peak as well as over-all light output. The strip is rolled on precision mills with electronic gaging equipment.

integrated CRUCIBLE steel service



Local Crucible personnel provide service in depth, ranging from quick reports on steels available to expert assistance with metal working problems.

Average warehouse staff is backed up by Crucible Metallurgists who, although located at mills, will travel.

maintains broad range of local customer services

– *ranges from in-stock deliveries to metallurgical research*

Here's *service in depth*, made possible by Crucible's integrated operation. It starts with in-stock deliveries of the steels you need and goes on to provide complete technical assistance for engineers, production, toolroom and maintenance men. And the entire service is available from all of Crucible's 27 warehouses –

(1) *Deliveries from local stocks* of 16,000 specialty steel items, including all grades, shapes and sizes.

(2) *Basic specialty steel data* – complete breakdowns on properties, characteristics, as well as machining and fabrication details. (Warehouse account salesmen can frequently recommend the best steel for the end use.)

(3) *Metalworking assistance* with unusual machining and fabricating problems – by trained, experienced sales-service engineers who specialize in tool steels, stainless, alloys.

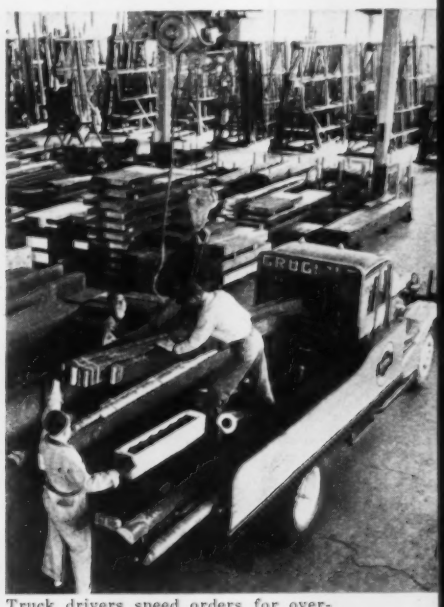
(4) *Metallurgical research* – help in developing steels for tomorrow's more exacting applications from Crucible's metallurgists, who will come to your plant on call.

Here's what one purchasing agent recently had to say about this over-all service: "We need lots of help with new steels – ones we haven't used before. The reason we rely on Crucible warehouses is because their men know the answers – or can get them for us quickly."

Why not simplify your own specialty steel purchasing problems by taking advantage of this integrated service? *Crucible Steel Company of America, Dept. PH15, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

Crucible metallurgists will come to your plant, if necessary, to help engineers use new steels or metals like titanium.

Sales service engineers' experience with fabricating, machining problems can solve toolroom and production problems.



Truck drivers speed orders for overnight delivery to you — or earlier if your order is an "emergency."

Teletype operators get direct reports on quantities available everywhere in the warehouse system — from Crucible's inventory-control computer room.

TOOL STEELS – Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollows, forgings and flat ground stocks

HIGH SPEED STEELS – Crucible's famous "Rex" ® steels; Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits

STAINLESS STEELS – Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles

FREE MACHINING STEELS – Crucible Max-El ® rounds, hexagons, plates and brake die steel

ALLOY STEELS – Bars, billets, strip and sheet

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DRILL STEELS – Wing or section twisted auger drill steels, hollow and solid drill steels

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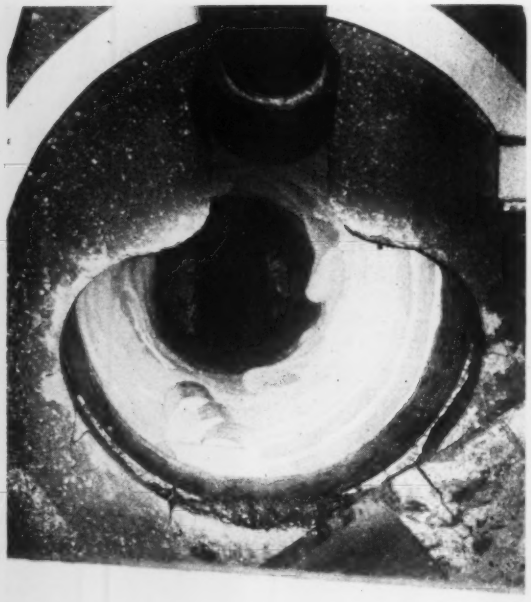
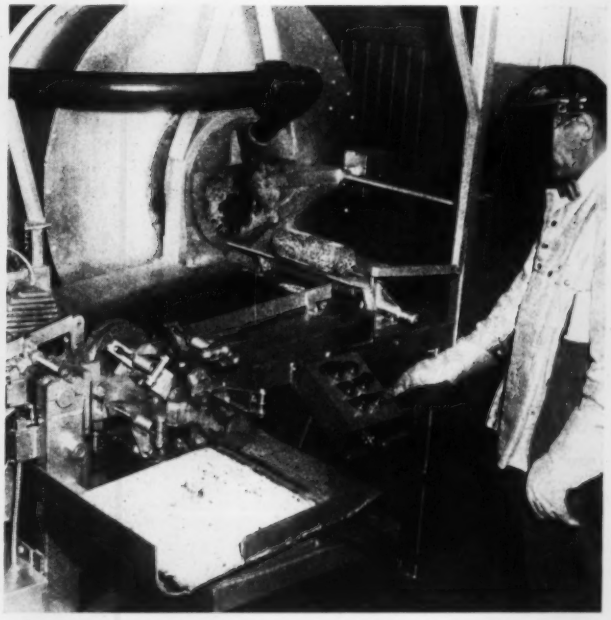


Billets move through rotating furnace barrel. Molten glass is 4 in. deep. Cycle is 12 to 15 minutes



Removed from furnace, billets are pushed through a scraper which leaves a thin lubricating film of glass on them

Glass Bath Heats Forging Billets

Operating cycles and control of workpiece temperatures are comparable to those of salt bath furnaces. The glass removes scale and prevents further oxidation

MOLTEN GLASS is used to heat extrusion and forging billets in a rotary, gas-fired furnace. The unit is being built by Bal-Tate Furnace Co., Royal Oak, Mich., under a license from Fiav Mazzacchera Co., Milan, Italy.

The furnace will handle billets (ranging from low carbon to stainless and tool grades) up to 10 in. in diameter. The operating cycle and control of billet temperatures are comparable to those of salt bath furnaces.

Advantages of Unit—The furnace can be heated to operating temperature in 2 to 3 hours, says Dr. Armand di Giulio, Bal-Tate's president. That means it can be shut down overnight. "This makes for easier maintenance, and the glass bath does away with the need for expensive and hard to replace electrodes and water cooling," he explains.

"Because molten glass preferentially attacks iron oxides, it removes scale and rust from billets first but does not allow further oxidation under normal operating cycles," he adds.

The furnace is designed for two-man operation but can be made automatic. Lack of scale and uniform heating permit efficient use of extrusion and forging pressures.

How It Operates — Billets first are fed into the recuperator (preheater) which uses waste heat from the furnace. They are heated for 30 to 45 minutes to about 1150° F, then charged into the rotary unit which turns at 1 to 2 rpm. Furnace temperatures are between 2100 and 2400° F.

About 150 lb of common scrap glass is used for most operations. It melts down into a bath 4 in. deep. At the end of 12 to 15 minutes at temperature, the billets are withdrawn from the furnace and pushed through a scraper to remove all but a thin film of the glass. They can go directly to the presses.

Dr. Di Giulio says the furnace will turn out 855 lb of billets an hour at 2250 to 2300° F.

CF&I

BLACK SATIN

a new, smooth oil tempered wire finish

"Black Satin"... that's the best way of describing the new, fine powdery oxide finish on CF&I-Wickwire Oil Tempered Wire.

It's a finish that makes our wire easier for you to work with... reduces your production costs... and is available in long 600 lb. continuous *unwelded* lengths.

BLACK SATIN

an improved Oil Tempered Wire finish available from CF&I-Wickwire

This powdery finish acts as a lubricant during your coiling and crimping operations. There are no large surface scales to "flake-off". Thus, constant readjustment of your original setup is reduced during production runs. The quality and quantity of your output will remain high without expensive downtime.

Uniformity Reduces Production Costs—Because our Black Satin finish is extremely uniform from one end of a coil to the other, from coil-to-coil, *and* from lot-to-lot, setup time is minimized. Your output per shift will increase as your equipment will not have to be altered to cope with the varying physical properties of the finish occasionally encountered in coils of Oil Tempered Wire. Scrap losses are reduced because production machinery can run continuously —"stop and go" operations are almost nil when new coils are started.

Extra Large Coils Increase Output—CF&I can further help reduce production costs through our processing and packaging facilities which make it possible to provide extra long coils that lessen the number of setups and resulting scrap loss. If your product is one which (because of production volume or physical size) requires the use of large quantities of Oil Tempered Wire, use our large coils which are available from 16" to 72" in diameter. A full range of sizes, grades and finishes of Oil Tempered Wire is available in 600 lb. continuous *unwelded* lengths. Straightened and cut lengths from 6" to 24 feet (or longer) can also be supplied.

If you are not set up to handle long-length coils, smaller weight packages are available.

Color Tag Identification Assures Quality—Every coil of CF&I-Wickwire Oil Tempered Wire is color-tagged with a complete record of its processing, testing and intended use.

Once you have selected the grade of Oil Tempered Wire that's best for your purpose, you can be sure of receiving the same quality on subsequent orders.

These tags, 3 of which are illustrated, show

Heat Number_____ Size_____

Tensile Strength_____

Date_____ Coil Number_____

Test Sheet Number_____

This identification system helps simplify your job of inventory control, in-plant storage, handling, and reordering.

When You Need Steel Wire Make CF&I Your Source of Supply. Oil Tempered Wire is but one of the many types of specialty wire produced by CF&I. To meet your needs and cut your costs, they can be supplied in a variety of packages: on returnable "Spiders" holding a single continuous length of wire weighing from 2000 to 4000 lbs.; on non-returnable "Spiders" with 500-700 lbs. capacity; in fibre-drums holding up to 600 lbs. of wire; in steel-strapped or wire tied coils (200 to 2000 lbs.) and in bare or paper-wrapped coils, or in 500 to 800 lb. capacity reels.

CF&I-WICKWIRE WIRE

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5934

Oil Controls Heat

Precision grinding demands constant workpiece temperature. Here's how one firm does it

FLOODING the grinding contact point with oil solves the problem of controlling workpiece temperature for Moore Special Tool Co., Bridgeport, Conn. Tolerance requirements dictate such close control. The parts, which are cooled to the temperature of the oil, are used in instruments which measure to 1-millionth of an inch.

Warm oil from a filter and chilled oil from a heat exchanger are blended. The blending valve is connected to a recording chart that tells the operator the coolant and lubricant temperatures.

He can control the oil temperature to suit the grinding requirements. Temperature is constant to within 0.25° F.

Filtering the Oil—Sump pumps, manufactured by Deming Co., Salem, Ohio, take the used oil from the grinders. They pump it through a primary, double bank filter (10 micron, 27 element). The filtered oil goes to a 750-gallon chamber for aeration and settling.

After the second stage, the oil passes through a heat exchanger where it is cooled by water. The temperature is governed by a 5-ton refrigeration unit. After cooling, the oil passes to the blending valve.

INGOTS BEING POURED at Bethlehem Steel Co.'s Lackawanna, N. Y., plant are leaded steel. They will be rolled into free-machining bars and billets. The leaded carbon screw stock is being marketed under the tradename, Beth-Led

MACHINE TOPICS

Tool Business Still Slow

Despite some published opinions of an upturn, most builders see a fourth quarter with little change, perhaps only a slight edge upward. Here are the reasons

FOURTH quarter machine tool business is going to look a lot like the other three quarters this year.

That's the way most machine tool builders are betting. Reason: There's no known program or group of programs in the works that could give the industry a much needed lift.

Markets—The industry's biggest customer group, automotive, is going slowly on programs that would take new capital equipment. What tooling is required for new projects is being filled largely from the automakers' own long list of "surplus" equipment (STEEL, Aug. 4, p. 50).

The other big customer industries, such as aircraft, farm equipment, and road machinery, are adequately tooled to meet today's requirements. Although some machines are being sold to missile contractors, one builder says, "Too much of the missile money is going into research, development, testing, and instrumentation to benefit us greatly."

Result—Most builders are picking up enough scattered orders to keep them going. Part of this is made possible by their reductions in plant personnel and working hours that result in lower break-even points (STEEL, Feb. 3, p. 66). One Detroit builder tells STEEL that his business amounts to a "low budget prosperity" and that it will continue well into if not through 1959.

Realism—These reports come in despite optimistic claims by some professional observers that machine tool business is picking up. The rise in new orders from $21.9 million in May to $23.5 million in June was welcome, but considered only a trifle when spread across the whole industry. The June figure is only $200,000 above the monthly average for the first half. A bright spot: Most builders continue to report a brisk pace in quotations.

Somewhat surprising to some experts, the fourth quarter prospects for special machines is about like that for the standards. A report in next week's STEEL will analyze trends and markets for the builders of specials, who feel their next boom is at least a year away.

Eggs and Obsolescence

Like many other capital equipment builders, Jones & Lamson Machine Co., Springfield, Vt., is concerned with the number of obsolete machines that are turning out relatively "high cost" parts in industry. In a crusade to explain the importance of efficient production, the company has produced a 20-minute color film, "The Price of Eggs."

The message: An executive thinks a farmer who tells him he can take his pick of three boxes of eggs, equal in size and freshness, but priced respectively at 75 cents, 90 cents, and $1 a dozen, must be mentally ill. But the same executive, in his own office, is unconcerned when confronted with the fact that it costs only 93 cents to make a part on a new machine, but $1.02 on an older machine, and $1.32 on a still older piece of equipment.

Real figures obtained by processing a specific part were used in the script. Simple arithmetic and logic are employed to spell out the expense of operating with less than optimum efficiency.

Jones & Lamson hopes the film can be shown not only to machine tool users (potential buyers), but to congressmen and others who have influence over such obsolescence factors as dollars and tax policy. They'll lend the film for private or public showings. They'll even furnish the film and printing plates for an accompanying booklet to competitive machine tool companies (the film and booklet are noncommercial).

NOW.. from MUELLER cold·prest IMPACT

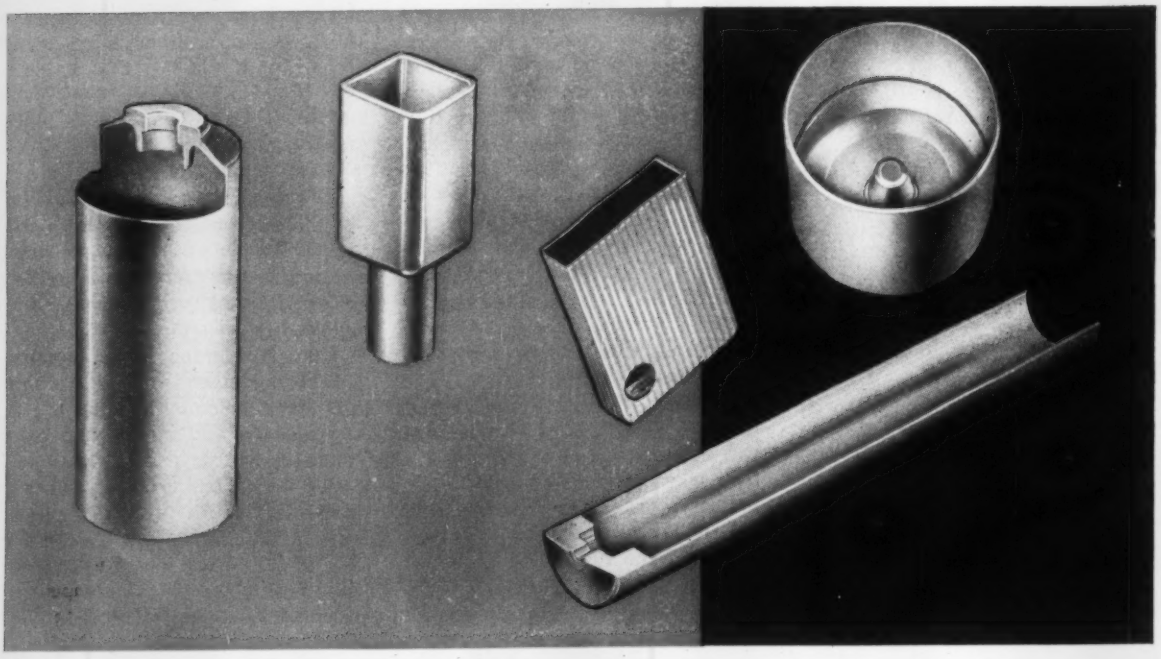
the amazing, new, chipless metalworking method that cuts production costs... ....improves part quality

Cold-Prest Impact Extrusions are here. This amazing new method of producing parts to closer tolerances . . . with better physical characteristics, and with absolutely no waste and at extemely high speed is the greatest development in metal-working in the last 20 years. And it's proving to be the most practical method of manufacturing a staggering number of designs that combine cold forged bases with shells shaped as rounds, ovals or rectangles.

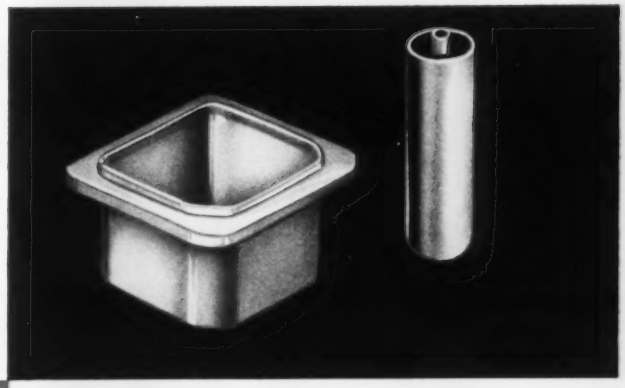
Here are some of the reasons why your company can save money and improve product quality . . . by specifying Mueller Brass Co. Cold-Prest Impact Extrusions. Parts are formed with *no chip loss;* you pay only for the metal that goes into the part. Because of the dimensional accuracy of Cold-Prest extrusions, parts can be held to closer tolerances and many costly secondary machining operations are eliminated. They have better physical properties with actually less metal needed to achieve greater strength.

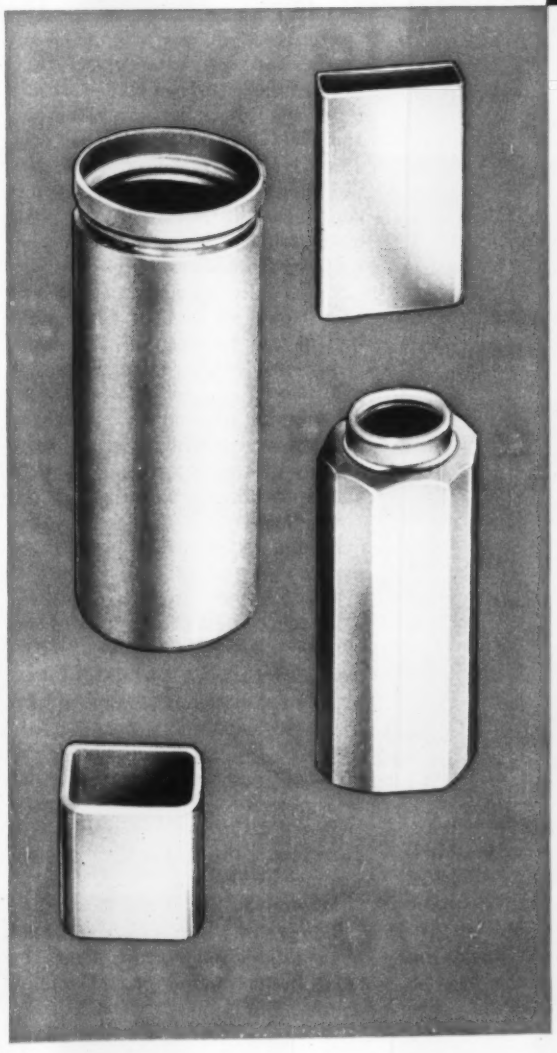
Cold-Prest Impact extruded parts often *reduce or eliminate assembly operations* because products employing several parts can often be made as a single extrusion. Also, complex parts produced by conventional methods requiring costly machining to close tolerances can be made in *A SINGLE OPERATION* as a Cold-Prest extrusion, saving raw material, costs of time, tools and labor . . . as well as assuring a positive leak-proof part.

These are the outstanding reasons why you should consider Cold-Prest Extrusions when you are specifying and purchasing fabricated metal parts. Call a Sales Engineer from the Mueller Brass Co. . . . he will be glad to discuss your problems and answer your questions. Write today for our new 16 page engineering manual on "Cold-Prest Impact Extrusions".



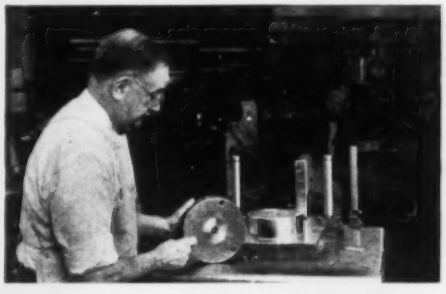
BRASS CO.
EXTRUSIONS





MUELLER BRASS CO. SERVICES mean better designed, better engineered, lower cost cold-prest extruded parts

To produce precision, high quality impact extrusions, Mueller Brass Co. combines all the important factors of design, engineering and production in its Cold-Prest extrusion process. Trained engineers take into consideration such elements as functional strength, finished appearance and proper control of metal flow. Mueller Brass Co. offers this design engineering service to its customers, and engineers are always available for consultation.



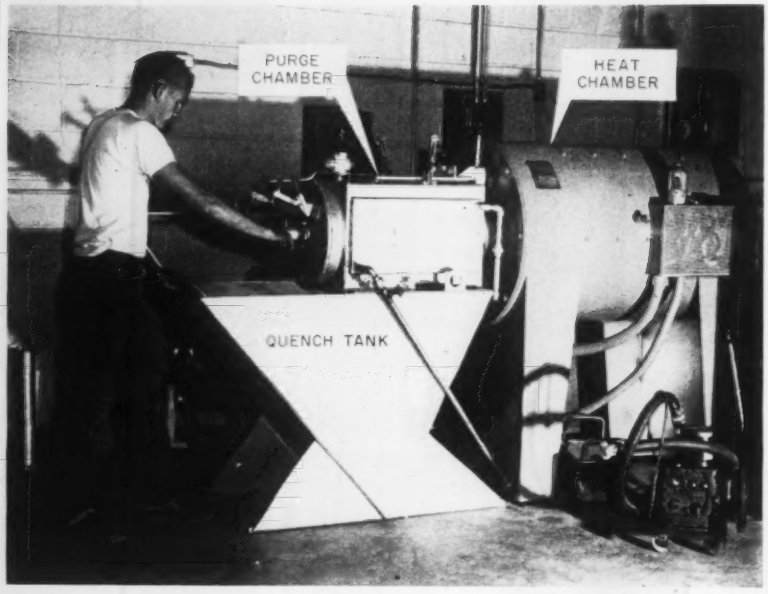
Here a die and punch assembly, made to exacting tolerances and with a mirror-like finish, receives a final inspection in the tool and die shop before being sent to the production department. Skilled craftsmen work with the best equipment available to produce these precision tools and dies. Technical skill, modern equipment and complete engineering services are available at no extra cost to you.

MUELLER BRASS CO.

MADE IN U.S.A. TO THE STANDARDS OF AMERICAN INDUSTRY

259

PORT HURON 26, MICHIGAN



Hot parts are pulled to purge chamber and quenched as . . .

Atmosphere Protects Finish

This heat treating unit protects parts against oxidation throughout cycle. It's used for small forgings, castings, and machined items of titanium, stainless, other metals

PARTS are protected against oxidation during heating, purging, and quenching in a furnace used at Metallurgical Consultants Inc., Maywood, Calif. Conventionally, the parts are exposed to air before quenching.

The work includes small forgings, castings, and machined items such as fasteners and fittings. Titanium, stainless steels, and other metals that require complete atmospheric protection are treated.

Basket Holds Parts—A container for the work is on a shaft that extends through the purge chamber into the heating section.

The operator simply withdraws the heated parts from the furnace into the purge chamber. He rotates the basket, and the parts drop to the quench bath. They fall into another basket and are removed from the quench tank with a clean and polished surface.

Equipment Design—The furnace, made by Pacific Scientific Co., Bell Gardens, Calif., has a cylindrical heating chamber with Nichrome electrical elements around an Inconel retort. Radiation shields on the basket concentrate the heat so that temperatures within the purge chamber and the quench tank remain relatively low. Retort temperatures may be as high as 2000° F.

Air is evacuated from the retort and purge chamber. A back purge of inert gas protects parts as they are heated. Location of the gas inlet is such that argon or helium pass through the workload, enter the purge chamber, and exhaust through the quench tank.

Fluid Pays for Itself

Synthetic hydraulic fluid does not require frequent replacement. It is fireproof

LONG RUN service and fewer maintenance manhours are said to be the benefits of a synthetic hydraulic fluid (Houghto-Safe No. 620) that is fireproof. It has been in service for 40 months in a diecasting machine at Electric Storage Battery Co., Philadelphia.

The machine was shut down recently, and the water glycol fluid was drained. Maintenance people claim that there was no oxidation, and fluid was in its original condition. Dust picked up in service floated on top of the liquid. Rings and vanes did not show any signs of corrosion or excessive wear.

High Cost Pays Off—The lubricant's cost is four times that of oil. It pays for itself by eliminating half a day a year of downtime (time needed to change regular oil).

Normally, oil oxidizes during use, forming sludge which settles to the bottom of the reservoir. A small amount works its way through the screens and into the rest of the hydraulic system, necessitating regular changes to fresh oil.

The 250-ton diecasting machine is basic to the plant's production of lead alloy grids for storage batteries. Hydraulic pressure clamps the dies for the shot and injects the molten metal.

Water Is Added — The water glycol is compatible with regular seals. It requires about 1 quart of water makeup per month. This maintains the viscosity recommended by the manufacturer, E. F. Houghton & Co., Philadelphia.

The product eliminates the hazard of a fluid line rupture near the open flame or the pot of molten metal (800° F).

Vinyl Powders Offered

You can now get vinyl in powder form to coat metals. It's available from National Polymer Products Inc., Reading, Pa. Metal parts are heated to a temperature above the flow point of the resin and dipped into the powder. You can get thickness of 10 to 50 mils in one dip.

* Stainless Steel welding information:

*Keep it clean

You get strong, tight joints when you weld Stainless Steel, but you have to make sure the surfaces have been thoroughly cleaned. Any grease, oil or dirt on the welded surface might affect the corrosion resistance of Stainless.

When you want to repair a crack, it's a good idea to chip out the cracked area completely so you're sure that only clean, solid metal is exposed. And remember, there are a lot of different kinds of Stainless Steel and they don't all react the same way. Be sure you handle each job right—check the "Stainless Steel Fabrication Book" before you start. If you don't have a copy of this 130-page guide, write on your company letterhead to United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

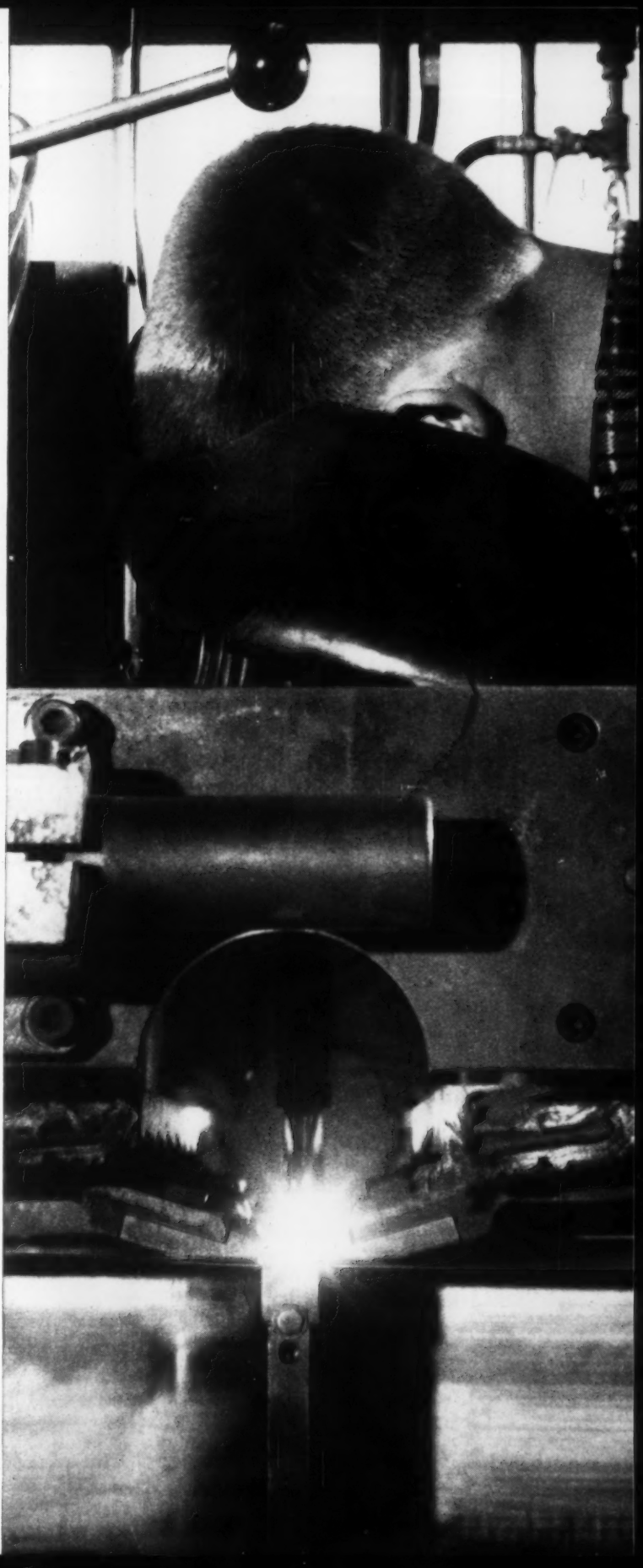
Remember: Stainless Steel isn't difficult to fabricate; it's just different.

USS is a registered trademark

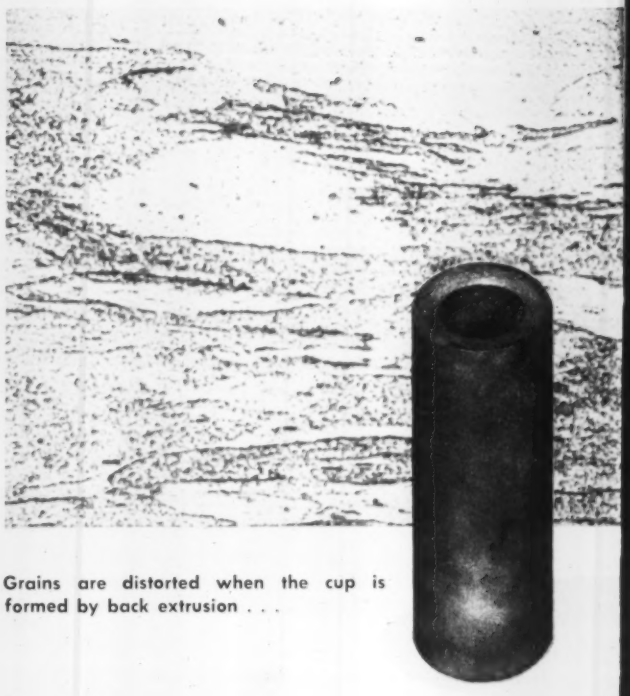
United States Steel Corporation—Pittsburgh
American Steel & Wire—Cleveland
National Tube—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Warehouse Distributors
United States Steel Export Company

United States Steel

USS



Starting slug (machined from bar stock) has coarse grains . . .



Grains are distorted when the cup is formed by back extrusion . . .

Forming Molybdenum Tubing:

Cast molybdenum is hot worked into small billets which are extruded in two steps to form tubing. Yield is only 60 per cent, but the prospects for improvement are bright

ARC CAST MOLYBDENUM (long classified as virtually unworkable by conventional methods) can be handled with less difficulty if its grain structure is refined. So reports Hunter Douglas Aluminum Div., Bridgeport Brass Co., Riverside, Calif., which has developed a cold extrusion method for making tubing.

Tubing it produces ranges from 1 to 6 in. in diameter. Seamless tubes 12 in. in diameter and several feet long may be developed with special techniques, says R. A. Quandt, vice president of research and development.

Lengths over 5 ft are feasible, depending on the combination of dimensions (outside diameter and wall thickness). Only unalloyed molybdenum has been successfully cold extruded because harder alloys (such as 0.5 per cent titanium) cause excessive tool loads.

Other shapes can be made if they are hollow, with one end closed, or where relatively heavy outside or inside diameter ribs are specified.

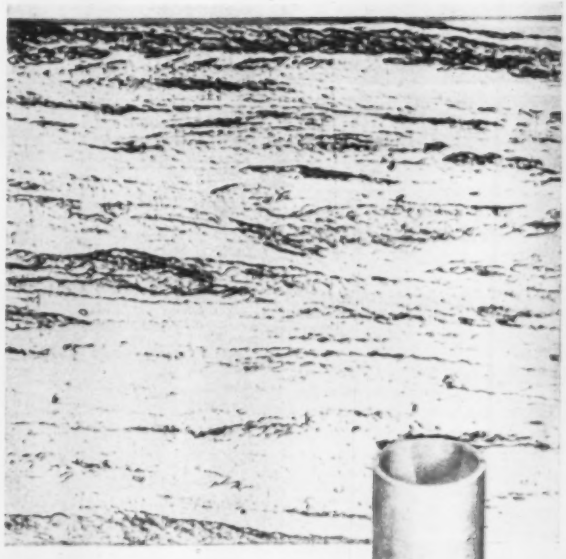
Hot Breakdown—A solid round billet for cold extrusion is made from the original casting by hot extrusion and hot rolling. Cast billets are first surface conditioned by machining and heating in a salt bath (2200 to 2400° F). The bath prevents both the fuming oxide and the formation of the slippery oxide surface that are characteristic of molybdenum. Salt adheres to the surface and protects it while lubricants are applied.

Extrusion ratios are about 3 to 1. The parts are stress relieved by annealing. Typical recovery is only 75 per cent since internal cracks are numerous and large cropping losses result from front end burst.

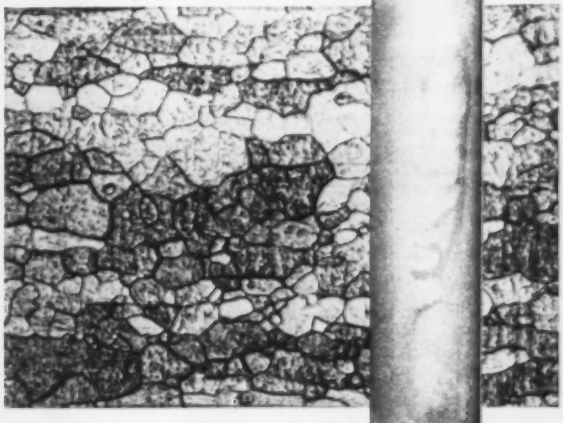
Cold work on the hot formed product must be done above the brittle transition temperature (above 150 to 200° F). Finishing operations often require intermediate anneals

Making Tubes—The slug made

Annealing reduces the grain size before tube is formed by 74.6 per cent reduction . . .



Forward extrusion destroys boundaries (above). Annealing at 2200° F makes fine grains (below)



Grain Size Is Key

by breakdown is heated to 600-800° F and cupped by backward extrusion. Tools are preheated to 500° F. The bottom of the cup must be trepanned or bored out before forward extrusion.

Section area is reduced about 75 per cent. With a starting slug 2⅜ in. in diameter, the finished tube has an inside diameter of 1½ in., a length of 16 in., and a wall thickness of 0.125 in. Yield from starting slug to finish is 82 per cent.

Tube Properties—The process is a step forward in the fabrication of molybdenum but the low total yield (60 per cent) and occasional surface deterioration caused by galling show there is room for improvement (surface finishes vary from 100 to 350 microinches rms).

Several results are encouraging: Maximum wall variation is 0.002 in. Tensile strength after 80 per cent reduction is 160,000 psi. Rockwell A hardness for as-extruded tubes is 63. After annealing at 2200° F in a hydrogen atmosphere, it is 53. Hardness of the original slug is 51.

Outlook — Hunter Douglas is working to improve the process. It is attempting to make tubing with less than 0.125 in. wall thickness. Tooling failures and breakage are problems, but tubes with 0.018 to 0.030 in. walls have been formed.

The company hopes to increase the extrusion ratio of the breakdown step, increase the ram speed, and utilize a 3200° F working temperature with an argon atmosphere induction heater.

TURCO Gets a Better, More Uniform Finish

And Cuts Paint Cost 35% with—

RANSBURG

NO. 2 PROCESS

Frequent color changes are simplified now in the painting of playground equipment with Ransburg Electro-Spray in this St. Louis plant. Long, tubular parts, as well as these smaller pieces, are uniformly coated with the Ransburg reciprocating disk.

QUALITY IMPROVEMENT! That was Turco Manufacturing's chief reason for changing from flo-coat to electrostatic spray painting of their quality line of playground equipment.

Not only is Ransburg No. 2 Process providing a higher quality, uniform coating on all parts, but Turco is saving 35% in paint cost!

Simplicity in color change with Electro-Spray is another important advantage here. With Turco's production methods, colors are changed 15 times in an 8-hour shift. Now, changes are made on the fly with no down-time. By contrast, the former "stop and go" method would mean over an hour's lost time in a day's operation.

NO REASON WHY YOU CAN'T DO IT TOO!

Whatever your product, if it's painted, we'd like to tell you more about the worthwhile savings and benefits which can be yours with RANSBURG ELECTROSTATIC PAINTING PROCESSES. Write for our No. 2 Process brochure which cites many examples of electrostatic spray painting on a wide variety of products.

Call or write

RANSBURG

Electro-Coating Corp.

3939 West 56th St., Indianapolis 23, Ind.

Mill Goes to School

Syracuse University gets old Weirton cold mill for research on rolls and rolling

THE No. 12 cold mill from the 10 in.-16 in. Strip Steel Dept. at Weirton Steel Co. Div. of National Steel Corp. has gone away to college.

After a 40-year career in steelmaking, the old hand mill has been donated to Syracuse University, Syracuse, N. Y., for experimental use.

Postwar Casualty — Two-high mills of the No. 12 type were used throughout the steel industry before World War II. Heavy demand for steel and lack of new equipment brought them back into full service in wartime. During World War II, the mill rolled clip stock for ammunition, and brass, copper, aluminum, magnesium, and silver chloride.

The job titles of the crewmen who operated the mills—feeder, roller, catcher and piler—have become classic in the industry. The old United mill was replaced by faster and more efficient equipment in March, 1956.

For Research—The mill was dismantled, and shipped to Syracuse on June 25, complete with drives, reels, motors, and controls. Also included was a 100-kw motor-generator set.

Syracuse University will use the mill in its efforts to improve the quality of steel mill rolls. The university will investigate not only the rolling processes but also how materials react under different rolling conditions. Included will be uranium, titanium, and super-high-strength steels.

Loads Turned Mechanically

Greater safety, faster movement, better control, and lower operating costs: Those are the benefits Timken Roller Bearing Co. is realizing from a mechanical magnet turner. It's installed on an overhead crane used to handle billets and bars in the conditioning department of the Steel & Tube Div., Canton, Ohio.

Before, a floorman was needed to follow the crane and swing the loads into position. Now, a worm gear and electric motor do the job.

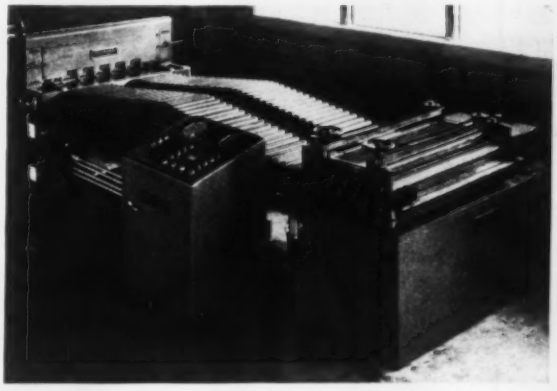
Automatic Shearing Lines Provide Another Way To Economize

Coils of steel, stainless, aluminum, and other metals can be cut into sheets automatically on this equipment. It decoils, straightens, and shears any length from 3 in.

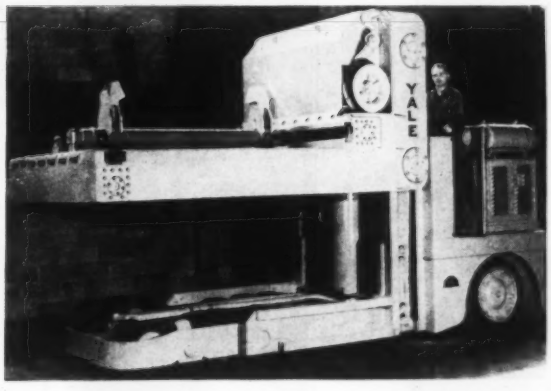
Installing a line in your plant will allow you to reduce steel inventories and warehouse space, realize the economy of buying coiled metal, and lower handling and labor costs. Being able to cut to blank size will decrease your scrap.

Equipment in the line includes a coil reel, straightening roll, hump table, shear, and conveyor. All units are wired into a console for electronic measuring.

Lines are offered in widths up to 6 ft and in metal thicknesses to 10 gage. *Write*: Secrest Machine Co., 1507 M St. N. W., Washington, D. C. *Phone*: Columbia 5-6696



Versatile Lift Truck Die Handler Loads Heavy Units



With this electric powered, die handling, lift truck you can end load or side load dies weighing 60,000 lb.

Bollard extensions allow you to accurately place the die in a press or storage. These extensions are added when extra thrust is necessary. They can be controlled individually, giving flexibility of die movement.

The die moving apparatus can be controlled from a pendant which can be carried around the truck.

End loading is done by an electric winch along the 96 in. length of the platform. In its lowered position, the platform is 18 in. from ground level, and has a lift of 75 in. *Write*: Yale Materials Handling Div., Yale & Towne Mfg. Co., 11000 Roosevelt Blvd., Philadelphia 15, Pa. *Phone*: Orchard 3-1200

Elevated Temperature Test Machine Has Wide Application

Model TM-1 provides a wide range of stress and strain rates at elevated temperatures. Mechanical properties of materials can be determined over temperature ranges extending to 3000° F and beyond.

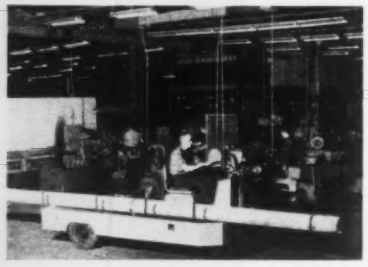
With a capacity to 50,000 lb, the machine handles tension, compression, creep, and fatigue tests—on full-sized ASTM specimens. The unit is applicable to missile and powerplant structural studies.

Electronically controlled servos automatically subject the specimens to any combination of rates of loading, elongation, and temperature. Ram rates of up to ¾ ips, temperature rises of 200° F a second, and cyclic rates of 10 cps, are possible. *Write*: Special Products Project, Dept. 75, Marquardt Aircraft Co., 16555 Saticoy St., Van Nuys, Calif. *Phone*: State 1-2121

NEW PRODUCTS and equipment

Truck Is Rugged

The 4000 lb capacity, Model F40 platform truck has a hydraulic torque converter transmission. This provides a continuous flow of pow-



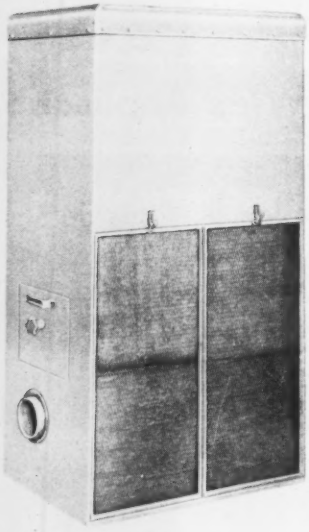
er to meet load conditions—and eliminates clutching and shifting.

It is powered by an air-cooled engine, and features automotive-type steering, and a spinproof differential.

The unit has a 42-in. freight bed that is 78 in. long behind the engine. The space at the right of the engine is 21 in. wide and 122 in. long. *Write*: Prime-Mover Co., Muscatine, Iowa.

Plant Dust Collected

Compact Type M unit dust collectors are available in three sizes: 450, 900, and 1800 cfm. In all sizes, the dust-laden air is delivered to a centrifugal precleaner where all but the finest particles are removed. For final cleaning, the air passes through steel wool filters.



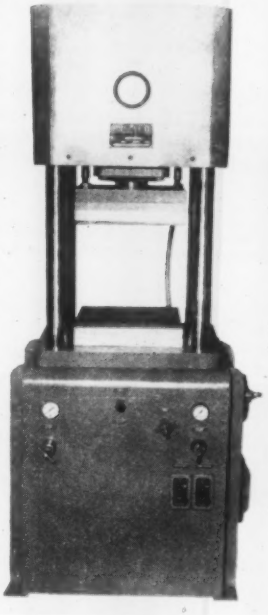
Dust receptacles are gasketed, sliding drawers that are secured with a handwheel to insure a leakproof seal. *Write*: Kirk & Blum Mfg. Co., 3100 Forrer St., Cincinnati 9, Ohio. *Phone*: Elmhurst 1-1400

Press Approach Controlled

A 75 ton, down acting, hydraulic molding press has controlled speed of approach with stepless tonnage adjustment (from 5 to 75 tons).

The hydraulic system operates economically on shop air lines, and installation is quick and inexpensive.

The unit is available with heated (electrical or steam) platens, water cooled platens, or multiple platen arrangements. Working area is 13 x 13 in., with 12 in. of daylight, and



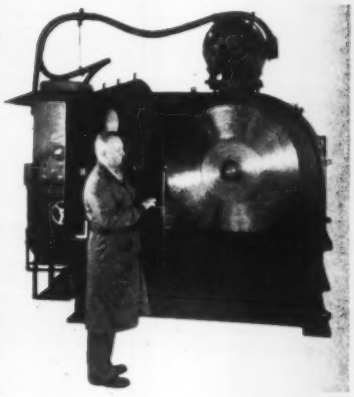
a 12-in. stroke. *Write*: Allied Engineering & Production Corp., 2421 Blanding Ave., Alameda, Calif. *Phone*: Lakehurst 3-6556

Friction Sawing Improved

This friction saw incorporates an electronic feed. It has a built-in coolant system that assures cool edge, dry blade cutting, and one-piece construction that permits it to be used without an expensive pit.

Models are produced in 40, 75, and 150 hp for cutting structurals, fabricated sections, rails, and pipe.

The saw's electronic, variable



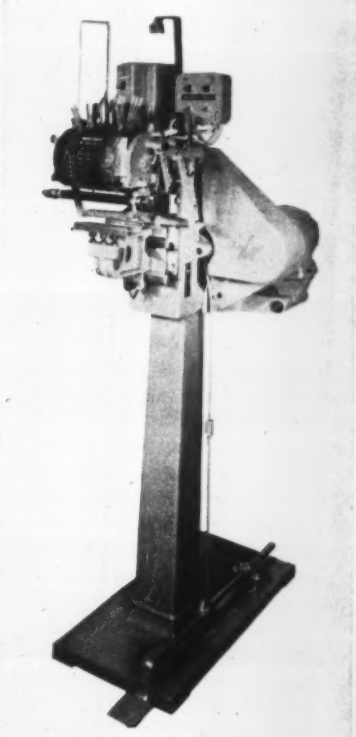
torque feed makes hydraulic oil lines, pumps, and storage tanks unnecessary. *Write*: Ty-Sa-Man Machine Co. Inc., 1103 White Ave., Knoxville, Tenn. *Phone*: 4-5471

Imprints Marked Dry

Handling, stacking, or packing can be done immediately after marking with the Model 105-10H machine.

The Thermomark process uses a heated printing head and Touch Dry ink. The ink is converted from solid to liquid on a heated ink plate, and dries instantly upon contact with the article marked.

Speed of 80 to 100 imprints a

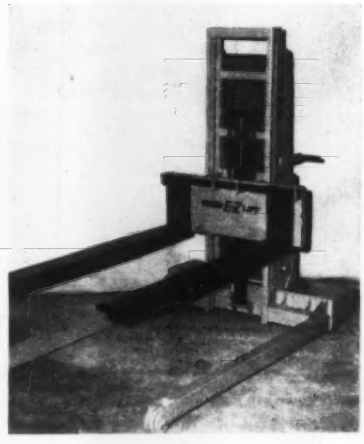


minute can be attained. *Write*: Markem Machine Co., Keene 52, N. H. *Phone*: Elmwood 2-1130

Lift Is Battery Operated

The Model L-582 lift has adjustable forks, a lifting height of 60 in., and a capacity of 3000 lb.

Power for lifting is supplied by a



12-volt industrial battery which operates a motor and hydraulic pump. A built-in rectifier recharges the battery. It can be plugged into a 110 volt, 60 cycle outlet. *Write*: Crown Controls Co. Inc., New Bremen, Ohio.

Header Vibration Lowered

These cold headers can be operated at high speeds, free of damaging vibration and excessive part replacement.

The solid cutter completely envelops the wire, providing a square, clean cutoff. This design is suitable to all materials, warm or cold.

The lubrication pressure system has a separate motor-driven pump. A metering-pin distributor directs the proper amount of oil to bearings, slides, and other essential points. *Write*: National Machinery Co., Tiffin, Ohio. *Phone*: Tiffin 5

Crane Sold in Kit Form

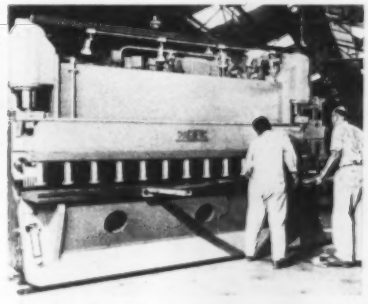
These packaged underhung cranes are available in capacities from ½ ton to 10 tons with spans up to 50 ft. Each kit includes two completely as-

sembled end trucks; required cross-shaft bracket, bearing assemblies, and shaft couplings; 20-ft hand chain; chain wheel with guide; and assembly instructions.

The bridge I-beam and shaft are purchased locally. No special tools or jigs are required to assemble the units. *Write*: Shaw-Box Crane & Hoist Div., Manning, Maxwell & Moore Inc., Muskegon, Mich. *Phone*: 3-1311

Shear Rake Adjustable

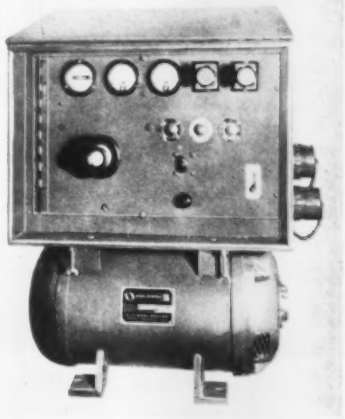
This adjustable rake hydraulic shear cuts metal from 0.024-in. aluminum to ⅝-in. mild steel. Knife clearance can be changed within a



minute. *Write*: Pacific Industrial Mfg. Co., 848 49th Ave., Oakland 1, Calif. *Phone*: Andover 1-8303

Provides 400-Cycle Power

These high frequency, motor alternator sets with 400-cycle alternators have no commutators, slip rings, or rotor windings. They supply power for high frequency ma-

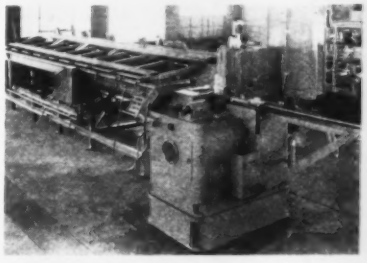


chine tools, computers, and other applications requiring this cycle rate. *Write*: Electrical Div., Safety Industries Inc., P. O. Box 904, New Haven 4, Conn. *Phone*: University 5-3171

Loads and Feeds Stock

This automatic loader and feeder eliminates manual handling of stock lengths of tubing and round stock.

It will hold 15,000 lb of material



and automatically feed the entire load through the machine. *Write*: Grieder Industries Inc., Bowling Green, Ohio.

Tighten Conveyor Curves

Overhead conveyor horizontal curves can be had in 6, 9, and 12 in. radiuses.

These tight turns, developed for systems where it is advantageous to return a line on a short radius, are

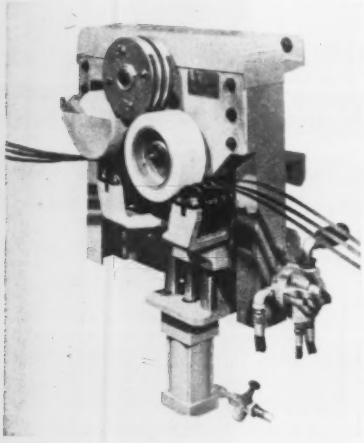
particularly desirable for use in ovens, drying areas, and storage lines. *Write*: Chainveyor Corp., E. Washington Blvd., Los Angeles 22, Calif. *Phone*: Raymond 3-4741

Prints Three Steel Bands

Manufacturers of steel bands and other similar products can print three coils of stock simultaneously with this in-line offset printing unit.

Incorporating individual type wheels holding identical or differing

NEW PRODUCTS and equipment



data, the unit can print one, two, or three bands simultaneously with characters from 1/8 to 3/4 in.

The machine will accommodate a range of band widths and stocks. *Write*: Jas. H. Matthews & Co., 3746 Forbes Ave., Pittsburgh 13, Pa. *Phone*: Museum 1-8500

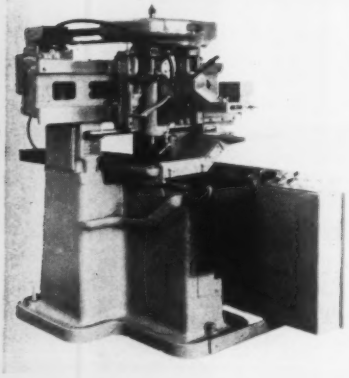
Profiles Automatically

The Magnespark profiler operates from a sheet steel profile template to produce any two dimensional, straight-line, or irregular contour shape at speeds up to 60 ipm.

It can trace at a preset constant surface speed, thus producing better surface finish as well as assuring longer cutting tool life.

Sensitivity of the two spark gap pickups in the tracing head take only 0.0002 in. stylus deflection to activate the table and slide. Simple tooling and zero tracer pressure permit use of soft steel templates.

The control cabinet is wired to accommodate automatic cycling components. *Write*: Pratt & Whitney Co. Inc., West Hartford 1, Conn. *Phone*: Adams 3-7561

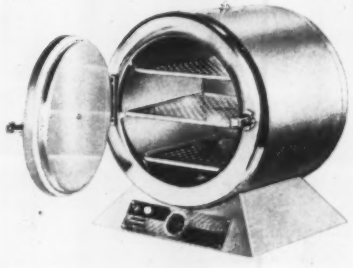


Provides Uniform Heat

Design of the Circ-O-Therm oven, for temperatures to 482° F, assures uniform heat (no cold corners or hot spots).

Applications include low temperature drawing, heating for joggling in aluminum forming, age hardening aluminum and magnesium alloys, shrink fitting small gears, and hydrogen embrittlement relief after plating.

The oven operates economically on 115 or 230 volts ac. Its work

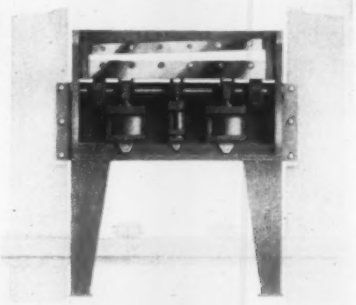


chamber is 13 in. deep and 15 in. in diameter. *Write*: Hevi-Duty Electric Co., Milwaukee 1, Wis. *Phone*: West 3-2756

Strip Fishtails Sheared

Air operated, mill mounted shears cut fishtails from leading and trailing ends of strip and sheets.

Compact and light, these shears



are bolted directly to mill housings. They are made in models to cut 24 to 84 in. wide materials. *Write*: Curry Air Shear Corp., 3519 Bigelow Blvd., Pittsburgh 13, Pa. *Phone*: Atlantic 1-1370

Marker Handled Easily

A portable pneumatic marker (Style C) is for hot and cold metal marking. It's a lightweight, safe

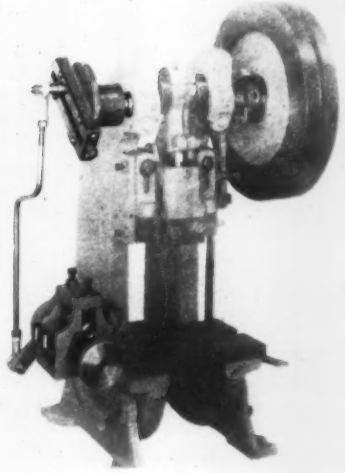
tool that assures clean impressions.

Accurate impressions free of chatter marks can be made on heavy castings and forgings. Air pressure as low as 50 psi will operate the hammer. It has its own surge chamber so that distance from the main air supply does not affect uniformity. *Write*: Pannier Corp., 220 Sandusky St., Pittsburgh 12, Pa. *Phone*: Fairfax 1-5185

Roll Feed Is Accurate

A low cost roll feed fits bench or floor type presses up to 7½-ton capacity. It assures accuracy on normal or high speed presswork.

It can handle material up to 2 in.



wide and 0.100 in. thick. The unit is supplied with roller lift and screw adjustment eccentric. *Write*: Durant Tool Co., Thurbers Avenue, Providence, R. I. *Phone*: Stuart 1-7800

Tractor Hauls Live Skids

The battery-powered Powrworker grip tractor will handle live skids of any standard height. A hydraulically operated jaw clamps on top

IT PAYS TO STANDARDIZE ON **STANSCREW**

Stanscrew service prevents problem for manufacturer of journal bearings

The wise manufacturer eliminates any possibility of fastener breakage *before* it can become a serious and expensive field problem.

As a prime example, a leading manufacturer of sealed cartridge journal bearings was concerned about the cap screws used to hold one essential part—the thrust cap—in place. They knew the lateral movements of a railroad car resulted in thrust on this cap, imposing extremely heavy loads on these fasteners.

A call to their industrial distributor soon had a Stanscrew fastener specialist on the job. He recommended continued use of a torque wrench and worked out the proper setting so that each fastener carried its rated load. Subsequent laboratory tests proved these recommended torque settings insured against fastener breakage.

The manufacturer accepted these recommendations . . . and thus eliminated a potentially serious problem before it could develop. The torque settings and technique developed by the Stanscrew representative have been incorporated in the company's instruction and maintenance manual to insure proper maintenance procedures.

Technical assistance like this is just one of the many reasons more and more manufacturers are standardizing on Stanscrew. Trained specialists, backed by an outstanding engineering staff, can solve your particular fastener problem. In addition to assuring the dependability of your product, often they can save you money . . . for example by substituting a standard fastener for a costly "special".

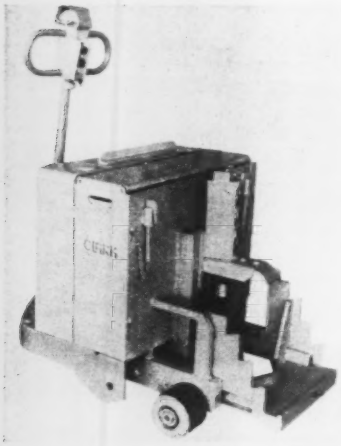
Call your Stanscrew distributor today for the answers to your fastener problems. He will see that the Stanscrew Fastener Specialist visits you without delay.

STANSCREW FASTENERS

CHICAGO | THE CHICAGO SCREW COMPANY, BELLWOOD, ILLINOIS
HMS | HARTFORD MACHINE SCREW COMPANY, HARTFORD, CONNECTICUT
WESTERN | THE WESTERN AUTOMATIC MACHINE SCREW COMPANY, ELYRIA, OHIO

STANDARD SCREW COMPANY 2701 Washington Boulevard, Bellwood, Illinois

NEW PRODUCTS and equipment



of the skid and on a notched plate under the skid.

The machine has a drawbar pull of 200 lb, a breakaway rating of 700 lb.

It will travel 2 mph loaded.

Brakes are automatically applied when the steering handle is in vertical or horizontal position. The handle returns to vertical when released. *Write*: Industrial Truck Div., Clark Equipment Co., Battle Creek, Mich. *Phone*: Woodward 2-6561

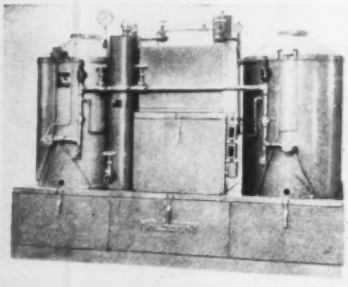
Steam in 2 to 3 Minutes

Model 220 steam generator has two heater coils and burners with individual controls.

Either half may be operated independently.

Continuous coil construction enables it to produce steam in 2 to 3 minutes from a cold start. It is the flash type with 30 boiler hp.

The generator is a complete package. No special foundations or walled-in areas are necessary. *Write*: Malsbary Mfg. Co., 845 92nd Ave., Oakland 3, Calif. *Phone*: Trinidad 2-7272

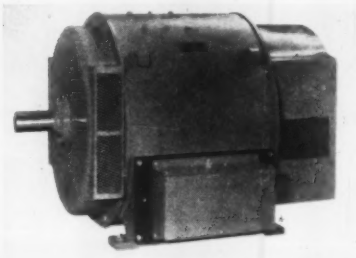


Frame Size Increased

With the addition of the Series 4230 DC frame, this firm can supply generators in ratings through 300 kw, 1200 rpm. Two-wire 250-volt, three-wire 125/250-volt, or 600-volt models are available.

Bracketed ball bearing design and all-steel fabrication are featured. Single or two-bearing units, shunt or compound-wound types are offered.

The generators meet all standards of NEMA and ASA-C50, and are available as marine generators to meet either ABS, Coast Guard,



AIEE-45, or Lloyd's requirements. *Write*: Columbia Electric Mfg. Co., 4519 Hamilton Ave., Cleveland 14, Ohio. *Phone*: Endicott 1-8060

Drives Use Static Power

Ultraflex packaged drives utilize light, compact, static power components to replace the conventional motor-generator set.

Ultraflex conversion units elimi-

nate all bearings, brushes, commutators, shafts, and couplings of rotary type, direct current power sources with a consequent reduction in installation and maintenance costs.

The drives are available in two forms—the Ultraflex E, a 1 to 40 hp electronic adjustable speed drive; and the Ultraflex M, a 1 to 200 hp magnetic amplifier adjustable speed drive. *Write*: Cutler-Hammer Inc., 320 N. 12th St., Milwaukee 1, Wis. *Phone*: Broadway 1-7800

Pump Saves Power

The ANP pump can be used to power presses, diecasting and clamp-

ing machines, as well as transfer machines and hydraulic drives.

When the adjustable preset pressure is reached on work, the control hydraulically reduces the pump volume to slip stroke to save input power, reduce heat, and hold pressure.

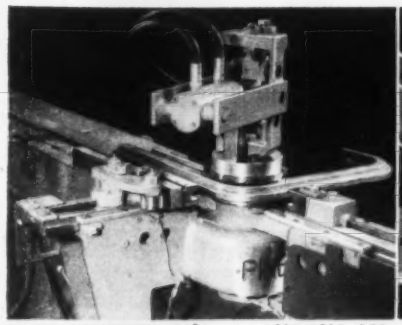
The pump is supplied for clockwise or counterclockwise rotation. *Write*: Oilgear Co., 1571T W. Pierce St., Milwaukee 4, Wis. *Phone*: Mitchell 5-6715

Truck Maintenance Eased

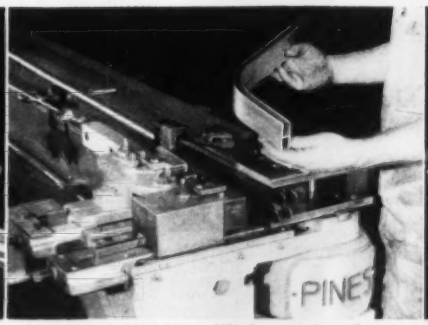
The Brute, a standup electric truck, is furnished in 2000, 2500, and 3000 lb capacities at 24-in. load centers.

All electrical contacts and hydraulic controls can be exposed in less than a minute by unlocking and swinging the steering post to the rear, and lifting the hinged truck top 90 degrees. All controls are on this lid.

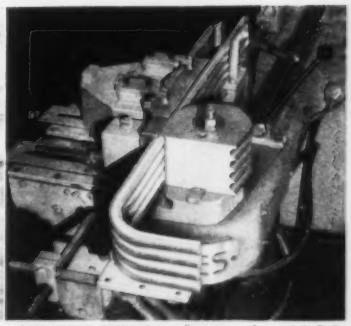
The standard mast has 33 in. free lift with a total lift height of 98 in. *Write*: Hustler Corp., Willoughby, Ohio. *Phone*: Whitehall 2-1757



ROLLED-STEEL SECTION—90° bends in 1¾"x1¾"x.059 stock produce automobile seat frames. Split dies with automatic actuator make possible speeds up to 500 bends per hour.



ALUMINUM EXTRUSION — Window awning ribs are accurately formed on a 5¾" inside radius using leaf-spring mandrels. Split-die tooling speeds loading and unloading operations.



ALUMINUM TUBING — Bending four 1" O.D. x .035 workpieces simultaneously on a 3½" CLR produces up to 1200 pieces per hour for large furniture plant.

7 WAYS TO CUT COST Production Bending . . . the "PINES-WAY"

8" DIA. HEAVY-WALL TUBING — Big, Size 10 Pines Machine with mandrel tooling, forms 16" radius bends in 8" x ⅜" tubes. Same tooling, less mandrel, handles 8" x ¾" tubes. Holds flattening to 8%, thinning on outside to 10%.

Hundreds of metalworking plants have found it possible to effect substantial savings by applying Pines Machines in fabricating a wide range of tubing, pipe, extruded or rolled-shaped parts. As illustrated, they are profitably used today on large or small work, and on both short as well as long run jobs. Production-wise and cost-wise, you will find bending the "Pines-Way" is a fast, accurate metal forming method. For assistance with any job or a cost analysis, call on Pines Engineers without obligation.

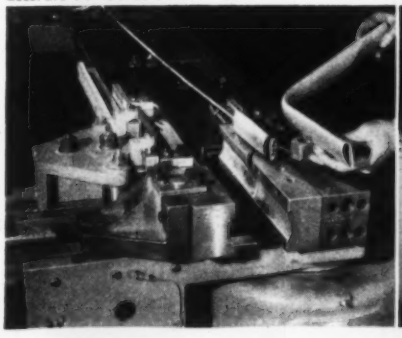
Write **FOR FREE DATA SHEETS**

For additional cost cutting ideas write for free copies of "Pines News" — illustrates latest bending techniques applied to actual jobs.

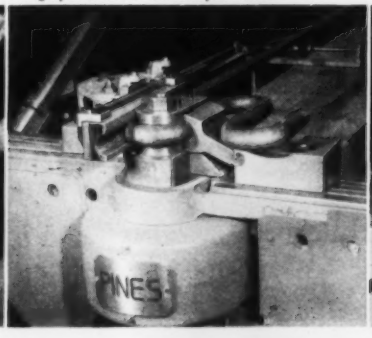
PINES ENGINEERING CO., INC.

Specialists in Tube Fabricating Machinery | 662 WALNUT • AURORA, ILLINOIS

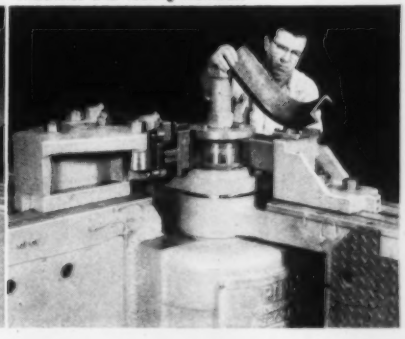
AIRFOIL SHAPE—13/16" x 2 1/16" aluminum aircraft struts are now rapidly formed at production speeds. Segmented mandrel and wiper die insure smooth, accurate 90° bends on 4¼" CLR.



HEAT EXCHANGER COILS — This tooling set-up produces accurate 180° serpentine bends in 2" O.D. x .065 tubing on 2½" CLR. Operating speed is 150 bends per hour.



STEEL CHANNELS — Bending heavy 4" x 5.40# steel channels on a 3½" I.R. for truck frames is another example of the versatility and efficiency of Pines Machines and tooling methods.



NEW literature

Write directly to the company for a copy

Circuit Breakers

This catalog contains pricing, dimensional, and application information on an extensive line of molded case and large air circuit breakers. Included are descriptions of I-T-E switchgear products, Transfo-Units, and high voltage switching devices. I-T-E Circuit Breaker Co., 19th and Hamilton Street, Philadelphia 30, Pa.

Malfunction Detector

Bulletin RF-586 explains the functions of the Model 65 Vibraswitch malfunction detector. The unit provides protection for large motors, pumps, compressors, and other rotating equipment. Aeronautical & Instrument Div., Robertshaw-Fulton Controls Co., Euclid Avenue at Santa Ana Freeway, Anaheim, Calif.

Workholding Devices

A catalog describes DTC and Burnerd workholding devices. Items include adapters, vises, angle tables, arbors, chucks, and magnetic chucks. DeWitt Equipment Corp., 190 Elizabeth Ave., Newark 8, N. J.

Mechanical Tubing

Simplified production can result from proper selection of mechanical tubing. Bulletin TB-418 tells how. Included are industry tolerance tables for cold drawn and hot finished seamless carbon steel tubing of this type. Tubular Products Div., Babcock & Wilcox Co., Beaver Falls, Pa.

Furnaces

Catalog 158 (200 pages) describes electric ovens, furnaces, baths, environmental cabinets, related temperature control equipment, and accessories for laboratory, pilot plant, and production. Blue M Electric Co., 138th and Chatham Street, Blue Island, Ill.

Metal-Ceramics

A 12-page booklet contains physical, mechanical, and chemical properties, and typical applications of cermets. They are used at temperatures to 2800° F to withstand thermal shock, wetting by molten metals, oxidation, abrasion, erosion, and high temperature attack by corrosive chemicals. Haynes Stellite Co., division of Union Carbide Corp., Kokomo, Ind.

Lathe Control Unit

The De Silvey Director is for automatic control and operation of ram-type turret lathes. The device allows manual and semiautomatic operation as well as automatic. A catalog describes the unit. De Silvey Corp., 201 Pennsylvania Ave., East Aurora, N. Y.

Tube Flaring

Catalog Sheet No. 1145A15 covers the Portaflare tool—a portable, motor driven unit for flaring tubing easily and accurately in the shop or field. It can be clamped in a bench vise. Parker Fittings & Hose Div., Parker-Hannifin Corp., 17325 Euclid Ave., Cleveland 12, Ohio.

Authorized Service

A bulletin lists authorized Lima service stations throughout the U. S. and Canada. Over 200 stations provide warranty service on electric motors, gearshift drives, and speed reducers. Dept. 149, Lima Electric Motor Co. Inc., Lima, Ohio.

Punched-Card Computer

Manual U-1471, "Graphical Presentation with the Univac 120 Punched-Card Electronic Computer," describes graphical presentation to observe trends and variations in a particular set of data. The method also allows spotting at a glance any discrepancy between desired results and computed results. Remington Rand Div., Sperry Rand Corp., 315 Fourth Ave., New York 10, N. Y.

Bearing Loads

Calculation of bearing loads for hot and cold rolling mills is described in a 16-page catalog, 457. SKF Industries Inc., Philadelphia 32, Pa.

High Reliability Factor

This 15-page brochure introduces a new symbol to the industrial scene, hiRf, standing for high reliability factor. It is made up of eight elements: Evaluation, research, design, manufacturing, quality control, service, people, and the intangibles. The hiRf symbol is used as a mark of "predictable excellence" in company products. Standard Pressed Steel Co., Jenkintown, Pa.

Superalloy Steel

This book pictorially treats the many steps involved in producing custommade steel products. It starts with the melting of the metal, discussing open hearth and electric furnaces, and consumable electrode vacuum melting. Forging, heat treating, machining, testing, and inspection are thoroughly covered. Dept. S-7, Midvale-Heppenstall Co., Nicetown, Philadelphia, Pa.

Hydraulic Cylinders

Bulletin No. 1258 details a line of stressed tierod design hydraulic cylinders. These C5H series units are for heavy duty, 3000 to 5000 psi applications. Sheffer Corp., 326 W. Wyoming Ave., Cincinnati 15, Ohio.

Chipless Shaping

Moving metal as opposed to removing it is discussed in Bulletin 900-P2. Upset forging, stamping, and the Rotoform process are covered. Commercial Shearing & Stamping Co., Youngstown 1, Ohio.

Structural Testing

The subject of testing missile components in the laboratory by using specially designed equipment and different testing techniques is covered in this booklet. Missile and Ordnance Systems Dept., General Electric Co., Room 5B, 3198 Chestnut St., Philadelphia 4, Pa.

Barrel Finishing

Bulletin No. 158 describes the full line of Lorco equipment for precision barrel finishing. Mechanized screens; chip bins; hoist pans; centrifugal dryers; vapor degreasers; and a triple action, tilting, polygonal barrel are covered. Lord Chemical Co., 2068 S. Queen St., York, Pa.

Vertical Profiler

A brochure describes Magnespark, a tracer control for automatic, 360 degree, profile milling operations. It works from a sheet steel, profile template to produce any two-dimensional shape. Pratt & Whitney Co. Inc., Charter Oak Boulevard, West Hartford 1, Conn.

NEW BOOKS

Estimating Manual for the Screw Machine Products Industry, National Screw Machine Products Association, 2860 E. 130th St., Cleveland 20, Ohio. 104 pages, $7.95

This manual is designed to provide a modern, thorough guide to estimating screw machine products for both independent producers and company-operated screw machine departments. The purpose behind its two-year preparation was the improvement of estimating practices in all companies. Topics covered include: Basic quoting procedures and qualifications; materials; estimating production on various equipment; setup, operating, administrative costs; specific examples of estimating; and estimating forms and aids.

Cost Control through Electronic Data Processing, Phil Carroll, Research Div., Society for Advancement of Management, 74 Fifth Ave., New York 11, N. Y. 32 pages, $1.50

Covered in this monograph are the practical ground rules of question asking (programming) and corrective managerial action in the use of electronic data processing as a cost-control instrument. The author covers systems and procedures, sales forecasts, production scheduling and control, expense budgeting, direct and indirect costing, and the development of decision-making ability in the managerial staff.

Constitution of Binary Alloys, Max Hansen, McGraw-Hill Book Co. Inc., 330 W. 42nd St., New York 36, N. Y. 1305 pages, $32.50

This revision and translation of the classic German work provides a source of reliable data concerning the constitution of binary alloy systems (phase diagrams) and the crystal structure of metallic phases. Widely scattered information in the world's metallurgical, physical, chemical, and crystallographical literature is analyzed and critically evaluated. The new edition includes 1286 systems and 684 diagrams.

SUPERIOR STAINLESS

Automotive Trim

opens the door to sales

The magnetic *appeal* of solid stainless steel is stronger than ever for today's careful car buyers. It starts with inviting brilliance . . . keeps pulling with the promise of carefree enjoyment . . . clinches matters with the time-proved ability of stainless to keep new-looking to trade-in day.

● *Build sales with Superior Stainless!*

Superior Steel

DIVISION OF

COPPERWELD STEEL COMPANY

CARNEGIE, PENNSYLVANIA

For Export: Copperweld Steel International Company, New York

THIS NEW CURVE CUTS COSTS

U.S. PAT. NO. 2403861

EXCLUSIVE IN DoALL SAFETY CENTER DRILLS

Here's why costs take a tumble with these new DoALL Center Drills:

Radial Type—This new precision-ground *curve* now eliminates the old fatigue point found in standard drills—the familiar sharp notch where the 60° angle meets the drill portion. This new radius angle provides greater strength and gives tip clearance to the drill portion. This provides the ultimate in minimizing breakage. Corners are automatically deburred. It also reduces friction between lathe center and work...provides a larger oil reservoir. Center grinding is eliminated on hardened parts. Lapping is fast and easy.

Heavy-Duty Type—Cuts an entirely new type of burr-free center. An 82° ground top angle forms a cutback edge. There is a slight radius where the 60° angle meets the drill portion—no sharp notches! Provides a larger bearing surface for heavier parts as compared to the radial type.

Think of it! These longer-lasting, faster-cutting DoALL Safety Center Drills cost no more than the old plain type—and actually cost 10% to 15% *less* than ordinary bell types.

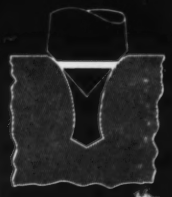
That's why more and more alert men have changed to DoALL. Try it—and see the difference!

Only DoALL offers ALL these features:

- Less drill breakage
- No fatigue point
- Greater drill strength
- Higher cutting efficiency
- Resharpenable
- Perfect work centering

—PLUS still more cost-cutting opportunities:

Deburring eliminated
Center grinding eliminated
Lathe-center damage eliminated



Radial Type Drilled Hole

Heavy-Duty Type Drilled Hole

IN STOCK
AT YOUR LOCAL DoALL STORE

THE DoALL COMPANY
DES PLAINES, ILLINOIS

If it's a DoALL it's top quality... it's rigidly laboratory-inspected ...and it saves you money through low-cost, nation-wide distribution.
—*Danny DoALL*

CT-38

Market Outlook

Buyers Accept Higher Prices

STEEL DEMAND is picking up in spite of higher prices. The gains are small but nonetheless indicative of the market's latent strength. Consumers are buying steel because they need it. By the end of the month, surplus inventories will be liquidated, and users will be ordering as much steel as they consume.

FEARS UNFOUNDED— Although the industry has long maintained that price fluctuations have little effect on demand, evidence of continued strength after the Aug. 1 increase was reassuring. Sen. Estes Kefauver (D., Tenn.) condemned the price hike in advance because it would "undoubtedly" reduce demand and production.

FEW COMPLAINTS— Consumers have been expecting higher prices since July 1 when the industry absorbed added employment costs (25 cents per manhour or $5 per ton). When steelmakers announced price hikes averaging $4.50 a ton, buyers were glad the uncertainties had been resolved and thankful that the markup was small.

"Our customers didn't stand up and shout hooray," admits Logan T. Johnston, executive vice president of Armco Steel Corp., "but their reaction was generally favorable.

"Of the thousands of users we serve, only two have been critical. Some have written Senator Kefauver that they support our move."

STAINLESS MOVES LAST— Although it was quick to follow Armco's lead on flat-rolled products and not at all reticent about making some price boosts of its own, Republic Steel Corp. delayed action on stainless. Some observers thought competition from aluminum was a deterrent, but others point out that Alcoa jacked up its prices as much as the steelmakers. The best explanation is probably the simplest: Stainless has a complicated price structure that can't be revised in a hurry.

BLOUGH MAKES FORECAST— Industry steelmaking operations will be at 54 per cent of capacity during the third quarter and in the 60 per cent range during the fourth, predicts Roger M. Blough, U. S. Steel Corp.'s chairman. "We believe it will be some time before we see any evidence of a vigorous pickup on our order books. Improvement in the latter part of this year is not going to be as rapid as some people seem to think."

HOMER SEES UPTURN— Taking a more optimistic view, Arthur B. Homer, president of Bethlehem Steel Corp., sees moderate and continued improvement in steel demand during the third and fourth quarters. Bethlehem will operate at 60 to 70 per cent of capacity during the last three months of the year, he predicts. Shipments to the construction and manufacturing industries will be good, he believes.

WAREHOUSES WELL STOCKED— Steel service centers have better sales than they expected in July, but they're not about to resume ordering big tonnages from mills. Inventories remain at or above the normal level of 120 days. Midwest firms report peak activity in reinforcing bars. Part of the demand is being generated by construction projects that were delayed by bad weather in June.

PRODUCTION STUDY— Steelmaking operations held at 59 per cent of capacity last week. Production was about 1,593,000 net tons of steel for ingots and castings. Scrap continued its bullish trend. STEEL's composite on the prime grade jumped to $42 a ton, up $2.

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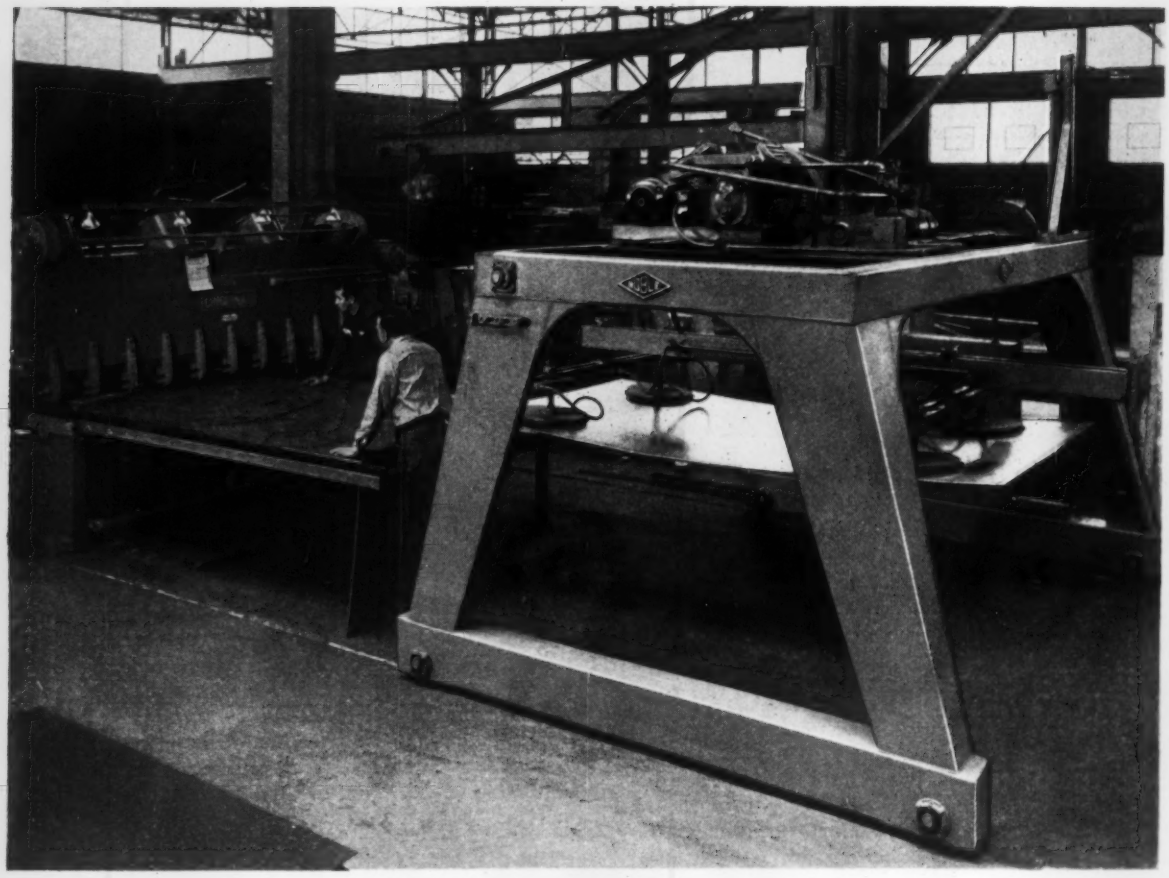

How Chicago Steel Service provides better service with a NOBLE *Automatic* PLATE HANDLER

A plate shear is essentially a fast-operating machine, but out-dated crane and sling "man-handling" methods of feeding it can really bottleneck the operation. This is bad enough in a fabricating plant, but even worse in a steel warehouse where prompt delivery is the sacred link that wins and holds customers. Chicago Steel Service Company, "The House of Stainless," did something about it. They installed a fully-automatic NOBLE Plate Handler that picks up sheet or plate from any selected pile, carries it to the shear feed table and deposits it—at the touch of a button. It has a capacity of 3,000 lbs., is equipped with a rotatable lift beam so sheet can be fed for either edge or end shearing. It handles plate to 10' in length edgewise, up to 30' or more lengthwise. Its vacuum cups handle any type of sheet or plate (even austenitic grades magnets can't touch) without marring or jimmying the edges.

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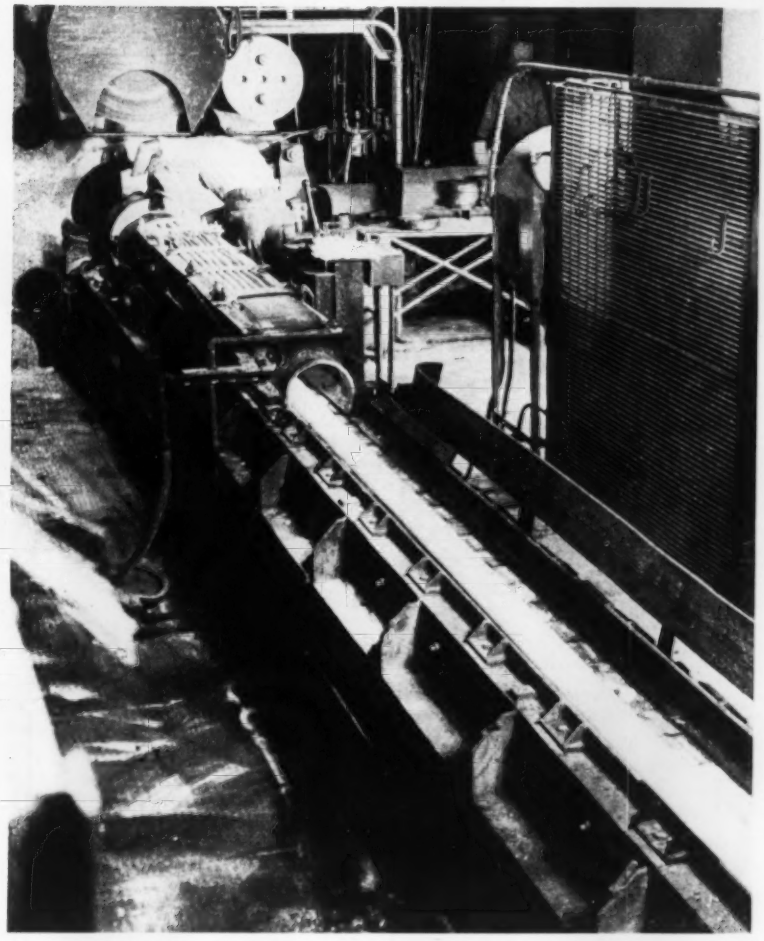

Here is stainless being extruded at National Tube Div., U. S. Steel Corp.

Extrusion Markets Needed

Change in defense emphasis from aircraft to missiles has hurt this industry. Companies hope to fill the gap with architectural and other commercial applications

STEEL EXTRUSIONS have a short past, a disappointing present, and a bright future.

Introduced only six years ago, they found quick acceptance in the jet aircraft industry. Now they're in the doldrums because of the government's decision to buy fewer planes and more missiles. A bigger nonmilitary market is needed.

One extruder's experience is typical: "We installed a press in 1952, hit a production peak in 1956 which continued until the fourth quarter of 1957. Since then, we've been going downhill with the industry. About 90 per cent of our output goes to the aircraft companies. During the spring of 1957, they began switching to missiles. 'Birds' don't require the same kind of parts as planes, and they're not being built in volume."

Few Producers—Leading manufacturers of steel extrusions include Allegheny Ludlum Steel Corp., Watervliet, N. Y.; Babcock & Wilcox Co., Beaver Falls, Pa.; National Tube Div., U. S. Steel Corp., Gary, Ind.; Jones & Laughlin Steel Corp., Pittsburgh; Curtiss-Wright Corp., Buffalo; H. M. Harper Co., Morton Grove, Ill.; and Canton Drop Forging & Mfg. Co., Canton, Ohio.

The absence of industry statistics makes it difficult to compare 1958 production to that of previous years, but major producers say their shipments are down substantially. Solid shapes are depressed by aircraft cutbacks, and hollows have taken the same dip as all tubular sales. H. M. Harper Co. is selling more shapes this year than last, but only because 1957 was the first year it extruded shapes.

At Babcock & Wilcox, the story's much the same. Having used its press for several years as a hot-working tool in tubemaking, B&W began production of stainless solids in July, 1957. "We're making a lot more shapes this year than last," says a sales executive, "but the only way to go was up."

Selling Points — Extrusions had quick success in jet aircraft because they required little machining and reduced scrap. Used mainly for engine rings and airframe sections, they saved the plane builders millions.

Proponents claim that extrusions: 1. Permit design flexibility. 2. Are available on short leadtime. 3. Eliminate the cost of special rolls for nonstandard sections. 4. Can be bought in small quantities. (Allegheny Ludlum will accept a 40-lb order; Babcock & Wilcox, 500 lb; National Tube, 1 ton.)

Blanks from which stainless tubing is made can be produced by hot extrusion. Previously, they were made only by horizontal piercing. The extrusion process is most attractive in producing irregular, hollow shapes in long, bar form. They can't be made economically by any other method, extruders claim.

Lubricants in Use — Most extruders lubricate their billets by the Ugine - Sejournet process (rolling them down a runway covered with glass particles and ramming them against a spun glass pad. "Other lubricants have been tried, and many are still being evaluated," says Allegheny Ludlum, "but none

offers the many desirable features of molten glass."

Curtiss-Wright Corp. disagrees. Says a company spokesman: "We're getting equally good results from our own recipes — mixtures of graphite, bentonite, molybdenum disulfide, and other ingredients— that we apply in a spray. Using glass makes dimensional control difficult for there must be space between the die and the workpiece." Canton Drop Forging & Mfg. Co. uses molten salt.

Old Markets and New — "We hope to recover business through nonaircraft markets," says one sales executive. "They include architectural applications and the chemical, refining, dairy, food processing, and business machine industries."

Earle A. Channer, vice president of H. M. Harper Co., thinks the architectural market will have the greatest growth but says aircraft applications are promising, too, especially for light stainless parts. "High temperature alloys will eventually be used for airframe sections," says Allegheny Ludlum, "and we'll extrude them."

Curtiss-Wright is using its 12,000-ton press to make pressure tubes for AEC reactors. It's quoting on rail sections (now being rolled and machined) and on heavy structural members (now being welded) for earthmoving machinery.

Steel Bars . . .

Bar Prices, Page 107

Most market observers don't think last week's boost in merchant bar prices will have any effect on buying. Ordering is expected to be dictated largely by consumers' needs over coming months; inventories are expected to be built up moderately later in the year if mill deliveries tend to become more extended. There has been virtually no hedge buying since June.

Republic Steel Corp. led the price upturn on bars. It increased hot-rolled carbon bars $5 a ton to $5.675 per 100 lb; hot-rolled alloy bars, $5 to $6.725; cold-finished carbon, $7 to $7.65; and cold-finished alloy, $5 to $9.025.

The farm equipment industry continues to buy steel at a time when there is usually a seasonal letdown. This industry is optimistic and expects business will gain 5 to 10 per cent over last year's.

There is little quickening in demand on appliance account, but automotive suppliers are placing orders for cold-finished bars for September and fourth quarter delivery. Up to now, auto suppliers were not figuring much in current steel buying.

Inland Steel Co.'s delivery schedule shows rail steel bars extend two to four weeks.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 107

Leading producers have raised prices on reinforcing steel bars $5 a ton; the advance is expected to extend to fabricators' quotations. Republic Steel Corp. initiated the increase, effective Aug. 4.

One importer in the Southwest has raised prices on reinforcing material $10 a ton.

Among construction steel products, demand is heaviest for concrete reinforcing bars in New England. Highway mesh volume is also increasing, although expected tonnage for the federal road program has not reached earlier estimates.

In addition to public school requirements, many higher educational institutions are expanding facilities, and, in most instances, proposed structures are of reinforced concrete design.

Rolling mill executives in the Pacific Northwest report operations are continuing at about the second quarter rate. Highway projects in the district are absorbing sizable tonnage.

Wire . . .

Wire Prices, Pages 109 & 110

Although only a few wire product prices were advanced in the initial upward movement in this market last week, expectations are that other items will be advanced shortly. Republic Steel Corp. initiated the advance on hot-rolled carbon wire rods, manufacturers' drawn wire, standard high carbon spring wire, and M.B. high carbon wire.

Wire rods are quoted at $6.40 per 100 lb, up $5 a ton; manufacturers' drawn wire, $8 per 100 lb, $7 a ton; standard high carbon spring wire, $9.75 per 100 lb, and $9 a ton; M.B. high carbon wire, $9.75 per 100 lb, up $9 a ton.

"We shipped more wire to manufacturers last month than we expected," a Pittsburgh district mill reports. "August shipments should be 20 per cent better than July's, and we ought to have another 25 per cent gain in September. The automotive companies have low inventories, but they aren't buying ahead. Their part suppliers are still waiting for releases."

Wiremakers won't be surprised if some of their customers complain about the higher prices, but they don't think the increases will lessen demand.

"Economic conditions are the controlling factor," said one sales official. "If the price hikes hurt us, it will be because of buyers' resistance to the increased cost of steel products that account for most of the tonnage in consumer durables. We won't lose any wire business to the aluminum people. They raised their prices more than we did."

Sheets, Strip . . .

Sheet & Strip Prices, Pages 108 & 109

Despite the upward adjustment in prices, demand for sheets is increasing. Most consumers were resigned to a price increase some weeks back, but they were looking for it on July 1. More recently, they thought it would come around Labor Day.

Sheet and strip price increases were initiated by Armco Steel Corp., Middletown, Ohio, July 31. All other leading producers followed shortly. New prices: Hot-rolled carbon sheets and strip, $5.10 per 100 pounds, up $3.50 a ton; cold-rolled sheets, $6.275, up $4.50; enameling sheets, $6.775, up $3; galvanized sheets, $6.875, up $5.50; long terne sheets, $7.225, up $4.50.

Several other sheet classifications were marked up (see Page 108) but up to late last week no move had been made on spring steel or flat wire.

See Improvement—August is expected to see an improvement in shipments and orders; further gains are indicated for September.

Hot-rolled sheet orders are coming in at a better rate, but one important midwestern mill can still book some tonnage for August shipment. Galvanized sheets are moving in surprising volume with pro-

duction not far below capacity. Automakers are still buying cold-rolled sheets for fall delivery, apparently watching leadtime to be sure of delivery.

Describing sales as "lousy," a Pittsburgh mill looks for gradual improvement in August and September. Automotive orders are trickling in, but they've not been up to expectations.

Prices No Deterrent—"We don't think higher prices will have any effect on demand," said a Pittsburgh sales executive. "Almost all our customers expected they'd have to pay more for steel before long. They won't begrudge us a moderate increase in view of the industry's poor first half earnings."

Sales to the appliance industry are improving due to new home construction. Automotive orders are up, but uncertainty about an auto labor settlement has apparently caused some companies to postpone buying to October.

Reflecting the relatively easy supply conditions, Inland Steel Co. quotes this delivery schedule: Hot-rolled sheets and strip, two to three weeks; cold-rolled sheets and strip, September; enameling iron sheets and electrical sheets, early to mid-September; electrolytic tin plate, black plate, and blue plate, August; galvanized sheets, October.

The schedule shows several changes since a week ago: Slight extensions in cold-rolled sheets and strip, enameling sheets, electrical sheets and galvanized sheets.

Hunterspoint Steel Co., Long Island City, N. Y., booked 2070 tons of uncoated corrugated carbon sheets, No. 28 gage, Corps of Engineers, San Francisco (two contracts; total $384,168).

Plates . . .

Plate Prices, Page 107

The $4 a ton increase in carbon plates (to $5.30 per 100 lb) initiated last week by Bethlehem Steel Corp. is not expected to have much influence on buying. Demand hasn't been particularly robust for some time, and expectations are that buying will continue to be in the hand-to-mouth category.

Some tightening in deliveries are likely this fall, but, at present, tonnage is readily available, especially light gage material. Indicative of supply, Inland Steel Co. deliveries on universal mill plates extend one to two weeks; on safety plates, 76 and 100 in. mill plates, two to three weeks.

As business picks up and deliveries tend to become more extended, steel buyers are likely to pay more attention to their inventories. It may mean more forward buying in the fall.

Plate fabricators in the Pacific Northwest report they are in receipt of little inquiry. Small district shops are practically out of backlogs.

Structural Shapes . . .

Structural Shape Prices, Page 107

Structural steel demand is moderately active, with shapes in easy supply and most fabricators fairly well booked into the fall.

Bridges and schools account for the bulk of fabricated structural steel contracts. Most shops are competitive pricewise with their backlogs lower.

Higher cost plain material, up $4.50 a ton, effective Aug. 6, still gets slight consideration in estimates for fabricating contracts. Bethlehem Steel Co. led the structural advance.

In New England, additional tonnage for the Worcester Expressway is expected to come out this month —6000 tons have been placed. District shops are estimating close to 12,000 tons for transmission towers.

Industrial construction is reported in a sharp upswing at Los Angeles, with fabricators bidding actively on new work. Competition is keen. Public work is also increasing.

Structural awards in the Pacific Northwest last week exceeded 1000 tons. Not much in the way of important tonnage is pending in the area, but sellers' backlogs are fair. Even small jobs, which have been reasonably numerous, have slowed down.

Tool Steel . . .

Tool Steel Prices, Page 111

Last week, Crucible Steel Co. of America, Pittsburgh, announced an upward revision in tool steel prices, effective Aug 6: 4.50 cents per pound on high speed steels; 3 cents per pound on alloy tool steel (40 cents per pound base and higher); 2.5 cents per pound on low alloy and water hardening tool steels (under 40 cents per pound base).

The first major change in 15 years in the method of pricing Kennametal tungsten carbide products becomes effective Sept. 2. The change, in most instances, reduces prices on large quantities and on large pieces, and increases prices on small quantities.

The new pricing system adopted by Kennametal Inc., Latrobe, Pa., follows steel industry practice. Base prices, plus uniform quantity extras, will be used for many standard items. The quantity extra on all stocked items will prorate handling costs over the quantity ordered. Base price of nonstocked items of tools and blanks will be 10 per cent higher than on stocked items, and the prorated quantity extra will cover special manufacturing setup and order handling costs.

On blanket orders specifying partial shipments over a period of time, the quantity extra for the quantity released is applied.

Shipments of high speed and tool steel, (excluding hollow drill steel) totaled 5048 net tons in June, reports the American Iron & Steel Institute. This was off slightly from the 5560 tons moved during May, and was down sharply from the 7989 tons shipped in June, 1957.

In the first six months of this year, shipments amounted to 34,243 net tons, vs. 56,083 in the corresponding period last year.

Distributors . . .

Prices, Page 112

Expectations are that steel distributors will raise their prices to at least cover advances on the mill level. Order bookings have improved the last couple weeks, and it is thought volume business will hold up enough to support any price hikes at this time.

Midwestern service centers were pleasantly surprised by July order volume. While it was below that in June, the total was much better than had been expected.

The normal warehouse inventory runs about 120 days, and most market observers think it is over that level now. The distributors probably won't do much toward bolstering their stocks over the near term.

On the whole, August business

(*Please turn to Page* 103)

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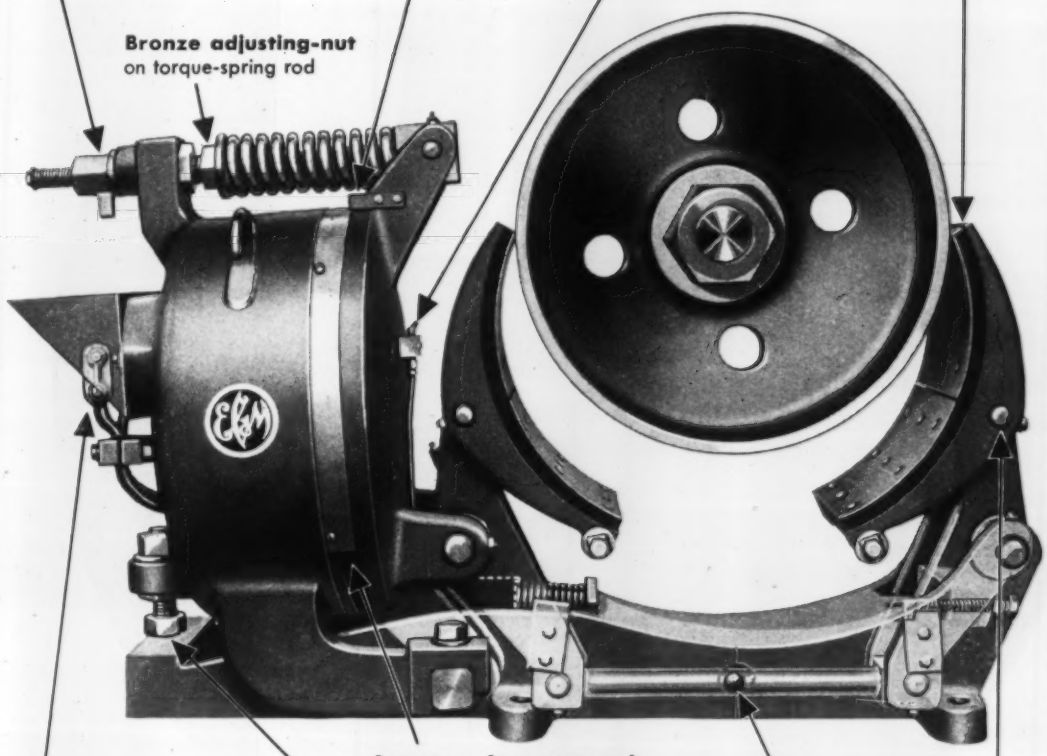

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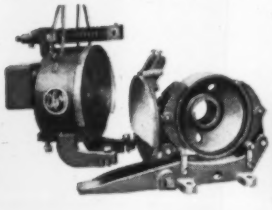
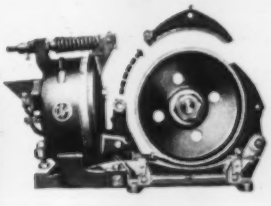
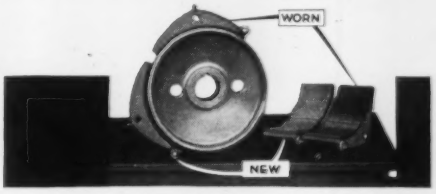
SIMPLIFIED MAGNET REMOVAL



SHOES AND LINERS EASILY REMOVED



ACCURATELY FORMED BRAKE BLOCKS



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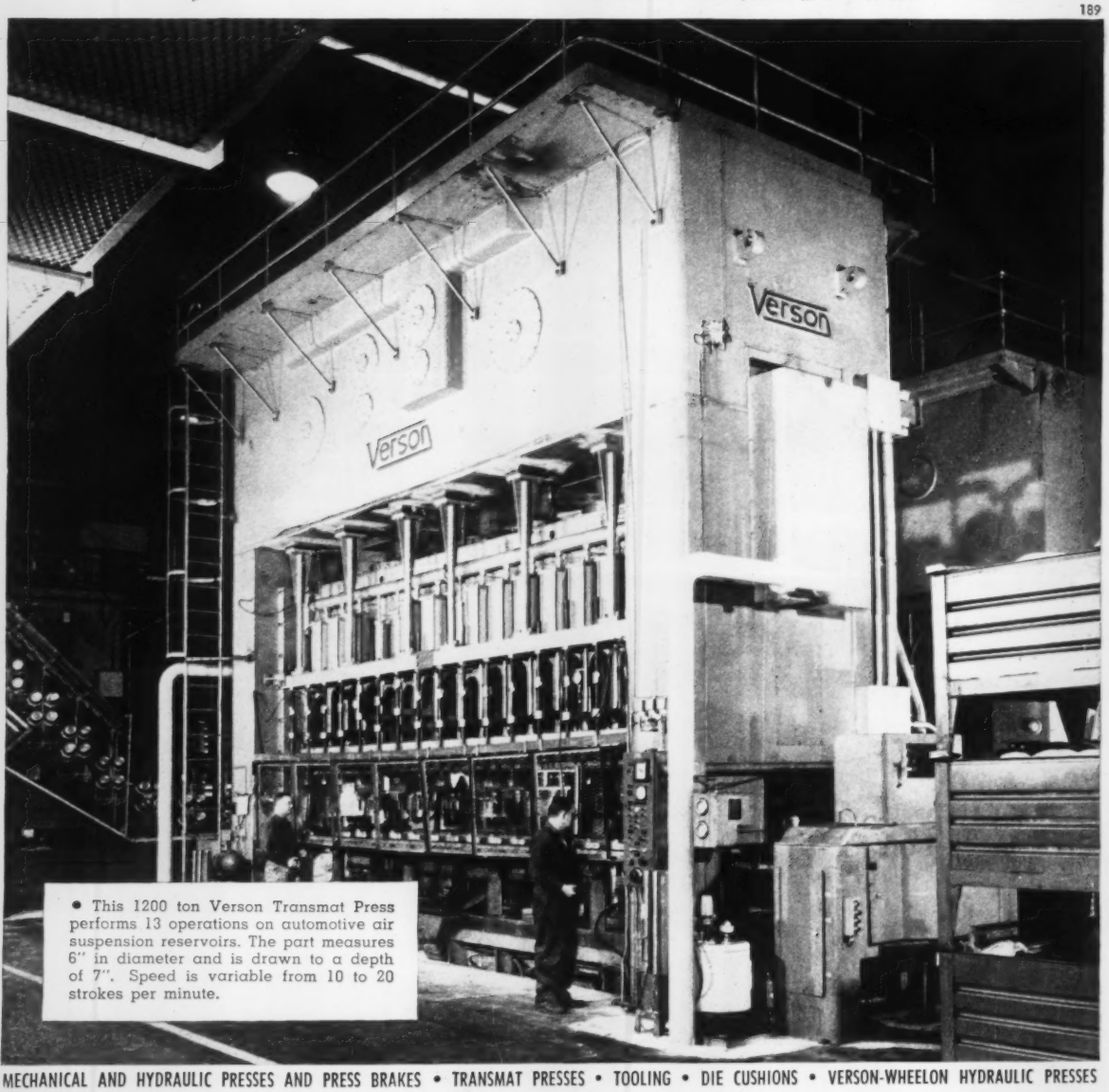

• This 1200 ton Verson Transmat Press performs 13 operations on automotive air suspension reservoirs. The part measures 6" in diameter and is drawn to a depth of 7". Speed is variable from 10 to 20 strokes per minute.

MECHANICAL AND HYDRAULIC PRESSES AND PRESS BRAKES • TRANSMAT PRESSES • TOOLING • DIE CUSHIONS • VERSON-WHEELON HYDRAULIC PRESSES

(*Concluded from Page 99*)

is expected to be better than July's. June volume was the best so far this year. One eastern seller says July business was off about 5 per cent from June's. A 10 per cent drop was expected.

Many service centers do a reinforcing bar fabricating business. It's running well ahead of general warehouse activities in the Midwest. Part of the volume is in cleaning up a backup of orders caused by wet weather during June.

Tubular Goods . . .

Tubular Goods Prices, Page 111

By the end of last week, virtually all the leading producers of tubular goods increased prices on standard pipe, line pipe, and oil country casing. The increases, averaging about 3 per cent and ranging $6 to $8 a ton, were initiated by Republic Steel Corp., Cleveland, Aug. 4.

Higher drilling rates in the Southwest are brightening the market outlook for oil country goods. August shipments will be better than June's, which month's tonnage was noticeably increased by price hedging.

U. S. Steel Corp.'s National Tube Div., Pittsburgh, recently booked an order from the Natural Gas Pipeline Co. of America for 85,500 tons of 36-in. electricweld pipe for a 490-mile pipeline from Oklahoma to the Chicago area. Because of an upturn in seamless pipe orders, National Tube has blown in its No. 3 blast furnace at McKeesport, Pa. It has been idle since Sept. 23, 1957.

A Texas pipe mill has booked an order which will keep its plant running at capacity until October. By then, a ruling by the Supreme Court on the Memphis decision may be forthcoming. Overturning of the Memphis ruling would release a flood of delayed pipe contracts.

Peoples Gas Light & Coke Co. has canceled a $76-million pipeline construction project for its subsidiary, Natural Gas Pipeline Co. of America. The contract with Colorado Interstate Gas Co. to supply gas for the project was canceled by mutual consent.

The Steel Co. of Canada Ltd. has announced plans for the construction of a $10-million pipe plant near Montreal. The mill is scheduled to go into production during the summer of 1959.

A fairly large volume of warehouse sales of cast iron pipe is reported in the Pacific Northwest. Inquiries for large lots are lacking, but a pickup in demand is expected in about 30 days.

Stainless Steel . . .

Stainless Steel Prices, Page 111

Production of stainless and heat resisting steel ingots totaled 200,048 net tons in the second quarter of this year, reports the American Iron & Steel Institute. Output in the first quarter was 167,821 tons; in the second quarter, 1957, it was 249,470 tons.

In the first six months of this year, production amounted to 379,179 net tons, vs. 572,473 in the same period last year.

Rankin Works To Close

Consolidation of the Rankin Works and the Donora Steel & Wire Works, American Steel & Wire Div., U. S. Steel Corp., Pittsburgh, on Nov. 1 is planned. The 72-year-old Rankin Works, Rankin, Pa., will be closed about that date, and the operation moved to Donora, Pa. Reason: Obsolescence of equipment

Iron Ore Statistics—June, 1958

(Gross tons)

Stocks at	U. S. Ores L. Superior	U. S. Ores Other	Canadian L. Superior	Canadian Other	Foreign Ores	Totals
U. S. Furnaces:						
Eastern	3,844,422	203,826	151,776	1,591,159	3,948,809	9,739,992
Pitts.-Youngstown	8,572,033	46,885	478,891	1,911,291	3,516,585	14,525,685
Cleve.-Detroit	8,261,597	138,736	129,868	259,038	379,590	9,168,829
Chicago	9,551,547	(a)	(a)	.....	(a)	9,551,547
Southern	(a)	2,328,913	.....	(a)	1,587,385	3,916,298
Western	.....	764,189	.....	.....	.....	764,189
Total	30,229,599	3,482,549	760,535	3,761,488	9,432,369	47,666,540
At U. S. Docks:						
Lake Erie	3,505,893	.....	103,529	983,644	.....	4,593,066
Other	.....	.....	.....	(a)	(a)	(a)
Total	3,505,893	.....	103,529	983,644	.....	4,593,066
Total U. S. Stocks	33,735,492	3,482,549	864,064	4,745,132	9,432,369	52,259,606
Total Canadian	1,255,973	.....	31,031	456,668	103,141	1,846,813
Total U. S. & Canada	34,991,465	3,482,549	895,095	5,201,800	9,535,510	54,106,419

CONSUMPTION OF IRON ORE—JUNE, 1958

(Gross tons)

In U. S. Districts	U. S. Ores L. Superior	U. S. Ores Other	Canadian L. Superior	Canadian Other	Foreign Ores	Totals
Eastern	387,638	108,619	59,685	228,370	665,050	1,449,362
Pitts.-Youngstown	1,223,920	123,745	35,180	293,614	354,935	2,031,394
Cleve.-Detroit	690,530	17,485	61,283	45,762	49,753	864,813
Chicago	1,264,755	(a)	(a)	.....	(a)	1,264,755
Southern	(a)	452,844	.....	(a)	140,937	593,781
Western	.....	469,922	.....	.....	.....	469,922
In U. S.						
Blast furnaces	3,009,234	917,000	135,773	298,967	485,369	4,846,343
Steel furnaces	121,460	51,717	7,592	19,709	316,404	516,882
Sintering (1)	436,142	203,872	12,783	249,070	408,902	1,310,769
Miscellaneous (2)	7	26	.....	.....	.....	33
Total U. S.	3,566,843	1,172,615	156,148	567,746	1,210,675	6,674,027
In Canada						
Blast furnaces	206,640	.....	55,742	63,560	.....	325,942
Steel furnaces	7,257	.....	.....	10,017	14,839	32,113
Sintering (1)	55,091	.....	144	19,103	.....	74,338
Miscellaneous (2)	60	.....	.....	.....	.....	60
Total Canada	269,048	.....	55,886	92,680	14,839	432,453
Total U. S.-Canada	3,835,891	1,172,615	212,034	660,426	1,225,514	7,106,480

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at Rankin, and the need for increased operational efficiency to meet competitive conditions.

Production at Rankin has fallen steadily for a number of years. The plant reached its peak in 1924, when shipments totaled 138,000 tons. As recently as 1956 it shipped 61,000 tons, but in 1957 the total dropped to 37,000 tons.

The Rankin Works was established in 1886 as a common products mill. It was acquired by U. S. Steel in 1902 for the production of steel strapping wire, merchant wire, nails, staples, barbed wire, woven fence, wire hoops.

Steel Shipments Increase

Finished steel shipments in June were more than 1 million net tons over May's, reports the American Iron & Steel Institute. Shipments to each of three leading markets—warehouses, automotive, and construction (including maintenance)—were up more than 200,000 tons.

The June total was 5,746,217 net tons, vs. 4,649,499 in May and 7,284,616 in June last year.

During the first six months, the mills shipped 28,699,218 net tons of finished products, vs. 44,285,435 in the first half of 1957.

Shipments to leading markets during the first half included: Warehouses, 5,097,936 tons, 18.6 per cent of total domestic shipments; construction, including maintenance, 4,477,302 tons, 16.3 per cent; automotive, 4,099,258 tons, 15 per cent; containers, 3,351,714 tons, 12.2 per cent.

Leading product shipments in the first half included: Cold-rolled sheets, 4,427,048 net tons; hot-rolled sheets, 2,761,328 tons; electrolytic tin plate, 2,599,582; plates, 2,749,813; hot-rolled bars and light shapes, 2,586,659; heavy structural shapes, 2,043,520; line pipe, 1,411,590; galvanized sheets, 1,266,441; drawn wire, 1,153,139 tons.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

10,000 tons, 38-story office building for Samuel Rudin, 80 Pine St., New York, to Harris Structural Steel Co., New York.

4300 tons, state highway structures, Elmsford section, Cross Westchester Expressway, New York, to Ernst Iron Works, Buffalo; Mt. Vernon Contracting Co., Mt. Vernon, N. Y., general contractor.

950 tons, barracks and mess hall, Ft. Devens, Mass., to Bethlehem Steel Co., Bethlehem, Pa.; Wexler Construction Co., Newton Highlands, Mass., general contractor.

750 tons, seven grade separation structures, Erie Thruway, Greene-Summit-Miller Creek Townships, Pa., to Jones & Laughlin Steel Corp., Pittsburgh; Allegheny Contracting Industries Inc., Pittsburgh, general contractor.

685 tons, U. S. post office and courthouse, Burlington, Vt., to Vermont Structural Steel Corp., Burlington; Franchi Construction Co. Inc., West Newton, Mass., general contractor; fabricated structural steel to same shop.

600 tons, high school, St. Joseph, Mich., to Mississippi Valley Structural Steel Co.; Pearson Construction Co., Benton Harbor, Mich., general contractor.

515 tons, central heating plant, Ft. George G. Meade, Maryland, to Ceco Steel Products Corp., New York; Irons & Reynolds Inc., Washington, general contractor; 1215 tons, fabricated structural steel to be awarded.

500 tons, office building, Chesapeake & Potomac Telephone Co., Charleston, W. Va., to West Virginia Steel Corp., Charleston; Consolidated Engineering Co., Baltimore, general contractor.

465 tons, Forest Grove School, Worcester, Mass. to Groisser & Schlager Iron Works, Somerville, Mass.; Vara Construction Co. Inc., Boston, general contractor; 35 tons, concrete reinforcing bars, Northern Steel Inc., Boston.

450 tons, high school, Naugatuck, Conn., to Connecticut Steel Co., New Haven, Conn. (structurals), and Fox Steel Co., Orange, Conn. (reinforcing bars); Fusco-Amatruda Co., New Haven, Conn., general contractor.

445 tons, two I-beam bridges, interstate project, F.A.P. 95, Bangor, Maine, to Bancroft & Martin Rolling Mills Co., South Portland, Maine; Seaboard Engineering Co. Inc., Portland, Maine, general contractor.

400 tons, junior high school, New Britain, Conn., to City Iron Works, Hartford, Conn. (structurals), and Scherer Steel Co., Hartford (reinforcing bars); Hayes Construction Co., New Britain, general contractor.

400 tons, dairy, Portland, Oreg., reported placed with Louis Raffle Co., Portland; general contract to Paul B. Emerick Co., Portland, at $1,366,000.

350 tons, Oregon bridge, Josephine County, reported to Gunderson Bros. Engineering Co., Portland, Oreg.

350 tons, liberal arts building, University of Massachusetts, Amherst, Mass., to Mohawk Steel Co., Albany, N. Y.; White Construction Co., Boston, general contractor.

325 tons, angles, Corps of Engineers, San Francisco, to Oregon Steel Mills, division of Gilmore Steel & Supply Co. Inc., Portland, Oreg.

290 tons, graduate center building, Northeastern University, Boston, to Bethlehem Steel Co., Bethlehem, Pa.; John A. Volpe Construction Co., Malden, Mass., general contractor.

285 tons, high school, St. Joseph, Mich., to Truscon Steel Div., Republic Steel Corp., Chicago; Pearson Construction Co., Benton Harbor, Mich., general contractor.

220 tons, also 140 tons of reinforcing, Washington State highway bridge, Whatcom County, reported to Poole, McGonigle & Dick, Portland, Oreg.; general contract to Wilder Construction Co., Portland, low at $535,322.

200 tons, science building, Swarthmore College, Swarthmore, Pa., to U. S. Steel Supply Div. U. S. Steel Corp., Philadelphia; Turner Construction Co., general contractor.

200 tons, grade separation structures, Erie Thruway, Greene-Summit-Miller Creek Townships, Pa., to Levinson Steel Co., Pittsburgh; Allegheny Contracting Industries Inc., Pittsburgh, general contractor.

170 tons, barracks and mess hall, Ft. Devens, Mass., to Groisser & Schlager Iron Works, Somerville, Mass.; Wexler Construction Co. Inc., Newton Highlands, Maine, general contractor.

150 tons, state highway structures, Erie-Niagara Counties, New York, to Central Steel Construction Co., New York; Sheridan Construction Corp., Buffalo, general contractor; 40 tons, reinforcing bars, Bethlehem Steel Co., Bethlehem, Pa.

150 tons, two I-beam bridges, Bangor, Maine, to Bancroft & Martin Rolling Mills Co., South Portland, Maine; Seaboard Engineering Corp., Portland, Maine, general contractor.

140 tons, high school, Hanover, Mass., to Groisser & Schlager Iron Works, Somerville, Mass.; Tornabene Bros. Co., Newton Lower Falls, Mass., general contractor; 120 tons, bar joists and 60 tons, concrete reinforcing bars, to Bethlehem Steel Co., Bethlehem, Pa.

(Please turn to Page 115)

DISTRICT INGOT RATES

(Percentage of Capacity Engaged)

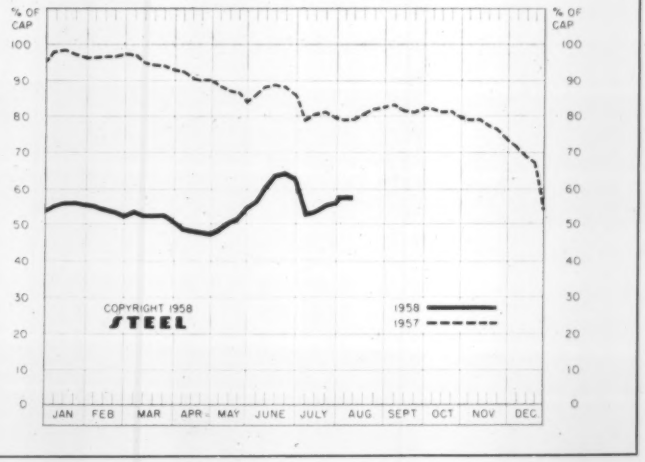
	Week Ended Aug. 10	Change	Same Week 1957	Same Week 1956
Pittsburgh	51.5	+ 1.5*	82.0	53.0
Chicago	67	+ 2*	85.5	57.0
Eastern	60	+ 2*	86.0	78.0
Youngstown	52	0*	81.0	50.0
Wheeling	73.5	0	87.0	73.0
Cleveland	53.5	— 0.5	87.0	60.5
Buffalo	51.5	+ 1.5	88.0	55.0
Birmingham	54.5	+ 2.5	85.5	15.0
Cincinnati	44.5	+ 3.5*	73.0	77.0
St. Louis	83	— 7	85.5	96.0
Detroit	68	+ 1*	54.0	43.0
Western	68	+ 1*	98.0	30.0
National Rate	59	0	79.0	52.5

INGOT PRODUCTION‡

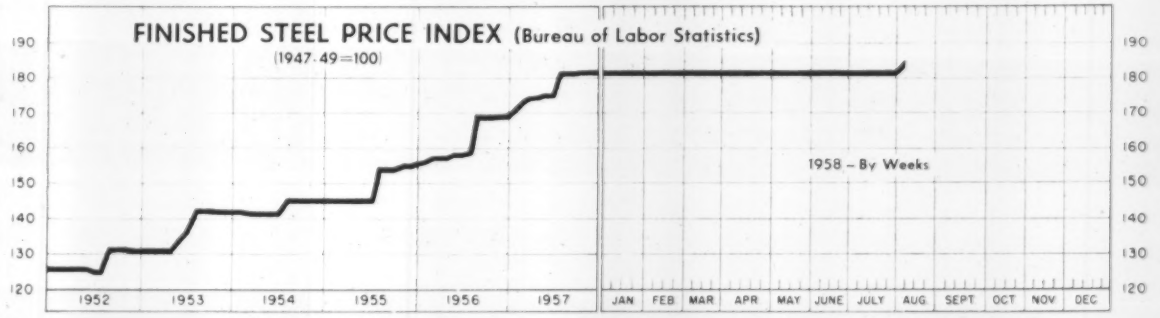
	Week Ended Aug. 10	Week Ago	Month Ago	Year Ago
INDEX (1947-49=100)	100.3†	97.2	89.8	127.2
NET TONS (In thousands)	1,611†	1,561	1,442	2,043

*Change from preceding week's revised rate. †Estimated. ‡American Iron & Steel Institute. Weekly capacity (net tons): 2,699,173 in 1958; 2,559,490 in 1957; 2,461,893 in 1956.

NATIONAL STEELWORKS OPERATIONS



Price Indexes and Composites



Aug. 5, 1958	Week Ago	Month Ago	July Avg	Year Ago
185.0†	181.5	181.5	181.5	181.5

†Preliminary

AVERAGE PRICES OF STEEL (Bureau of Labor Statistics)

Week Ended Aug. 5

Prices include mill base prices and typical extras and deductions. Units are 100 lb except where otherwise noted in parentheses. For complete description of the following products and extras and deductions applicable to them, write to STEEL.

Rails, Standard No. 1	$5.600	Bars, Reinforcing	6.285
Rails, Light, 40 lb	7.067	Bars, C.F., Carbon	10.570
Tie Plates	6.600	Bars, C.F., Alloy	14.000
Axles, Railway	9.825	Bars, C.F., Stainless, 302 (lb)	0.553
Wheels, Freight Car, 33 in. (per wheel)	60.000	Sheets, H.R., Carbon	6.350
Plates, Carbon	6.150	Sheets, C.R., Carbon	7.300
Structural Shapes	5.942	Sheets, Galvanized	8.545
Bars, Tool Steel, Carbon (lb)	0.535	Sheets, C.R., Stainless, 302 (lb)	0.688
Bars, Tool Steel, Alloy, Oil Hardening Die (lb)	0.650	Sheets, Electrical	12.625
Bars, Tool Steel, H.R., Alloy, High Speed, W 6.75, Cr 4.5, V 2.1, Mo 5.5, C 0.60 (lb)	1.355	Strip, C.R., Carbon	9.481
Bars, Tool Steel, H.R., Alloy, High Speed, W18, Cr 4, V 1 (lb)	1.850	Strip, C.R., Stainless, 430 (lb)	0.493
Bars, H.R., Alloy	10.713	Strip, H.R., Carbon	6.250
Bars, H.R., Stainless, 303 (lb)	0.525	Pipe, Black, Buttweld (100 ft)	20.502
Bars, H.R., Carbon	6.675	Pipe, Galv., Buttweld (100 ft)	23.952
		Pipe, Line (100 ft)	205.710
		Casing, Oil Well, Carbon (100 ft)	201.080
		Casing, Oil Well, Alloy (100 ft)	313.163
		Tubes, Boiler (100 ft)	49.130
		Tubing, Mechanical, Carbon (100 ft)	24.953
		Tubing, Mechanical, Stainless, 304 (100 ft)	205.608
		Tin Plate, Hot-dipped, 1.25 lb (95 lb base box)	9.783
		Tin Plate, Electrolytic, 0.25 lb (95 lb base box)	8.483
		Black Plate, Canmaking Quality (95 lb base box)	7.583
		Wire, Drawn, Carbon	10.575
		Wire, Drawn, Stainless, 430 (lb)	0.653
		Bale Ties (bundles)	7.967
		Nails, Wire, 8d Common	9.828
		Wire, Barbed (80-rod spool)	8.719
		Woven Wire Fence (20-rod roll)	21.737

STEEL's FINISHED STEEL PRICE INDEX*

	Aug. 6 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Index (1935-39 avg=100)	245.03†	239.15	239.15	239.15	189.38
Index in cents per lb	6.638†	6.479	6.479	6.479	5.130

STEEL's ARITHMETICAL PRICE COMPOSITES*

Finished Steel, NT	$148.74†	$145.42	$145.42	$146.19	$115.56
No. 2 Fdry Pig Iron, GT	66.49	66.49	66.49	66.49	56.54
Basic Pig Iron, GT	65.99	65.99	65.99	65.99	56.04
Malleable Pig Iron, GT	67.27	67.27	67.27	67.27	57.27
Steelmaking Scrap, GT	42.00	40.00	35.67	53.83	44.08

*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130. †Preliminary.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED STEEL

	Aug. 6 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bars, H.R., Pittsburgh	5.675	5.425	5.425	5.425	4.15
Bars, H.R., Chicago	5.675	5.425	5.425	5.425	4.15
Bars, H.R., deld. Philadelphia	5.975	5.725	5.725	5.715	5.302
Bars, C.F., Pittsburgh	7.65*	7.30*	7.30*	7.30*	5.20
Shapes, Std., Pittsburgh	5.275	5.275	5.275	5.275	4.10
Shapes, Std., Chicago	5.275	5.275	5.275	5.275	4.10
Shapes, deld., Philadelphia	5.77	5.545	5.545	5.585	4.38
Plates, Pittsburgh	5.10	5.10	5.10	5.10	4.10
Plates, Chicago	5.10	5.10	5.10	5.10	4.10
Plates, Coatesville, Pa.	5.30	5.10	5.10	5.50	4.35
Plates, Sparrows Point, Md.	5.30	5.10	5.10	5.10	4.10
Plates, Claymont, Del.	5.30	5.10	5.10	5.70	4.55
Sheets, H.R., Pittsburgh	5.10	4.925	4.925	4.925	3.925
Sheets, H.R., Chicago	5-10	4.925	4.925	4.925	3.925
Sheets, C.R., Pittsburgh	6.275	6.05	6.05	6.05	4.775
Sheets, C.R., Chicago	6.275	6.05	6.05	6.05	4.775
Sheets, C.R., Detroit	6.275	6.05	6.05	6.05-6.15	4.975
Sheets, Galv., Pittsburgh	6.875	6.60	6.60	6.60	5.275
Strip, H.R., Pittsburgh	5.10	4.925	4.925	4.925	3.975-4.425
Strip, H.R., Chicago	5.10	4.925	4.925	4.925	3.925
Strip, C.R., Pittsburgh	7.425	7.15	7.15	7.15	5.45-5.95
Strip, C.R., Chicago	7.425	7.15	7.15	7.15	5.70
Strip, C.R., Detroit	7.425	7.15	7.15	7.25	5.45-6.05
Wire, Basic, Pittsburgh	8.00	7.65	7.65	7.65	5.475-5.525
Nails, Wire, Pittsburgh	8.95	8.95	8.95	8.95	6.35-6.55
Tin plate (1.50 lb) box, Pitts.	$10.30	$10.30	$10.30	$10.30	$8.95

*Including 0.35c for special quality.

SEMIFINISHED STEEL

Billets, forging, Pitts. (NT)	$99.50	$96.00	$96.00	$96.00	$75.50
Wire rods 7/32-5/8" Pitts.	6.40	6.15	6.15	6.15	4.525

PIG IRON, Gross Ton

	Aug. 6 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bessemer, Pitts.	$67.00	$67.00	$67.00	$67.00	$57.00
Basic, Valley	66.00	66.00	66.00	66.00	56.00
Basic, deld., Phila.	70.41	70.41	70.41	69.88	60.75
No. 2 Fdry, NevilleIsland, Pa.	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, Chicago	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, deld., Phila.	70.91	70.91	70.91	70.38	61.25
No. 2 Fdry, Birm.	62.50	62.50	62.50	62.50	52.88
No. 2 Fdry (Birm.) deld. Cin	70.20	70.20	70.20	70.20	60.43
Malleable, Valley	66.50	66.50	66.50	66.50	56.50
Malleable, Chicago	66.50	66.50	66.50	66.50	56.50
Ferromanganese, net ton	245.00†	245.00†	245.00†	255.00†	200.00*

†74-76% Mn, Duquesne, Pa. *Etna, Pa.

SCRAP, Gross Ton (Including broker's commission)

No. 1 Heavy Melt, Pittsburgh	$44.50	$41.50	$35.50	$55.50	$44.50
No. 1 Heavy Melt, E. Pa.	38.00	36.00	34.00	52.00	44.25
No. 1 Heavy Melt, Chicago	43.50	42.50	38.00	54.00	43.50
No. 1 Heavy Melt, Valley	43.50	43.50	38.50	55.50	45.50
No. 1 Heavy Melt, Cleve.	40.00	38.50	35.00	52.50	45.50
No. 1 Heavy Melt, Buffalo	34.50	27.50	27.50	46.50	43.75
Rails, Rerolling, Chicago	64.50	61.50	55.50	79.50	56.00
No. 1 Cast, Chicago	45.50	44.50	41.50	47.50	42.00

COKE, Net Ton

Beehive, Furn., Connlsvl.	$15.25	$15.25	$15.25	$15.25	$14.75
Beehive, Fdry., Connlsvl.	18.25	18.25	18.25	18.25	16.75

ROY T. HURLEY

Portrait by Bachrach

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STEEL
The Metalworking Weekly

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Steel Prices

Mill prices as reported to STEEL, Aug. 6, cents per pound except as otherwise noted. *Changes shown in italics.* Code number following mill points indicates producing company. Key to producers, page 108; footnotes, page 110.

SEMIFINISHED

INGOTS, Carbon, Forging (NT)
Munhall,Pa. U5 ..... $73.50

INGOTS, Alloy (NT)
Detroit S41 ..... $77.00
Farrell,Pa. S3 ..... 77.00
Lowellville,O. S3 ..... 77.00
Midland,Pa. C18 ..... 77.00
Munhall,Pa. U5 ..... 82.00
Sharon,Pa. S3 ..... 77.00

BILLETS, BLOOMS & SLABS
Carbon, Rerolling (NT)
Bessemer,Pa. U5 ..... $80.00
Buffalo R2 ..... 80.00
Clairton,Pa. U5 ..... 80.00
Ensley,Ala. T2 ..... 80.00
Fairfield,Ala. T2 ..... 80.00
Fontana,Calif. K1 ..... 88.00
Gary,Ind. U5 ..... 80.00
Johnstown,Pa. B3 ..... 80.00
Lackawanna,N.Y. B2 ..... 80.00
Munhall,Pa. U5 ..... 80.00
Owensboro,Ky. G8 ..... 77.50
S.Chicago,Ill. R2, U5 ..... 80.00
S.Duquesne,Pa. U5 ..... 80.00
Sterling,Ill. N15 ..... 77.50
Youngstown R2 ..... 80.00

Carbon, Forging (NT)
Bessemer,Pa. N5 ..... $99.50
Buffalo R2 ..... 99.50
Canton,O. R2 ..... 102.00
Clairton,Pa. U5 ..... 99.50
Conshohocken,Pa. A3 ..... 101.00
Ensley,Ala. T2 ..... 99.50
Fairfield,Ala. T2 ..... 99.50
Fontana,Calif. K1 ..... 105.50
Gary,Ind. U5 ..... 99.50
Geneva, Utah C11 ..... 99.50
Houston S5 ..... 104.50
Johnstown,Pa. B2 ..... 99.50
Lackawanna,N.Y. B2 ..... 99.50
LosAngeles B3 ..... 105.50
Midland,Pa. C18 ..... 96.00
Munhall,Pa. U5 ..... 99.50
Owensboro,Ky. C8 ..... 96.00
Seattle B3 ..... 109.50
Sharon,Pa. S3 ..... 96.00
S.Chicago R2, U5, W14 99.50
S.Duquesne,Pa. U5 ..... 99.50
S.SanFrancisco B3 ..... 105.50
Warren,O. C17 ..... 99.50

Alloy, Forging (NT)
Bethlehem,Pa. R2 ..... $119.00
Bridgeport,Conn. C32 ..... 114.00
Buffalo R2 ..... 119.00
Canton,O. R2, T7 ..... 119.00
Conshohocken,Pa. A3 ..... 121.00
Detroit S41 ..... 114.00
Economy,Pa. B14 ..... 114.00
Farrell,Pa. S3 ..... 114.00
Fontana,Calif. K1 ..... 135.00
Gary,Ind. U5 ..... 119.00
Houston S5 ..... 124.00
Ind.Harbor,Ind. Y1 ..... 119.00
Johnstown,Pa. B2 ..... 119.00
Lackawanna,N.Y. B2 ..... 119.00
LosAngeles B3 ..... 134.00
Lowellville,O. S3 ..... 114.00
Massillon,O. R2 ..... 119.00
Midland,Pa. C18 ..... 114.00
Munhall,Pa. U5 ..... 119.00
Owensboro,Ky. G8 ..... 114.00
Sharon,Pa. S3 ..... 114.00
S.Chicago R2,U5,W14 119.00
S.Duquesne,Pa. U5 ..... 119.00
Struthers,O. Y1 ..... 119.00
Warren,O. C17 ..... 119.00

ROUNDS, SEAMLESS TUBE (NT)
Buffalo R2 ..... $122.50
Canton,O. R2 ..... 125.00
Cleveland R2 ..... 122.50
Gary,Ind. U5 ..... 122.50
S.Chicago,Ill. R2, W14 122.50
S.Duquesne,Pa. U5 ..... 122.50
Warren,O. C17 ..... 122.50

SKELP
Aliquippa,Pa. J5 ..... 5.075
Munhall,Pa. U5 ..... 5.05
Pittsburgh J5 ..... 5.075
Warren,O. R2 ..... 5.05
Youngstown R2, U5 ..... 5.05

WIRE RODS
AlabamaCity,Ala, R2 ..... 6.40
Aliquippa,Pa. J5 ..... 6.40
Alton,Ill. L1 ..... 6.35
Buffalo W12 ..... 6.15
Cleveland A7 ..... 6.40
Donora,Pa. A7 ..... 6.40
Fairfield,Ala. T2 ..... 6.40
Houston S5 ..... 6.65
IndianaHarbor,Ind. Y1 ..... 6.40
Johnstown,Pa. B2 ..... 6.40
Joliet,Ill. A7 ..... 6.40
KansasCity,Mo. S5 ..... 6.65
Kokomo,Ind. C16 ..... 6.25
Los Angeles B3 ..... 6.95
Minnequa,Colo. C10 ..... 6.40
Monessen,Pa. P7 ..... 6.40
N.Tonawanda,N.Y. B11 ..... 6.15
Pittsburg,Calif. C11 ..... 7.20
Portsmouth,O. P12 ..... 6.40
Roebling,N.J. R5 ..... 6.25
S.Chicago,Ill. R2, W14 ..... 6.40
SparrowsPoint,Md. B2 ..... 6.50
Sterling,Ill.(1) N15 ..... 6.15
Sterling,Ill. N15 ..... 6.25
Struthers,O. Y1 ..... 6.40
Worcester,Mass. A7 ..... 6.70

STRUCTURALS

Carbon Steel Std. Shapes
AlabamaCity,Ala. R2 ..... 5.275
Atlanta A11 ..... 5.475
Aliquippa,Pa. J5 ..... 5.275
Bessemer,Ala. T2 ..... 5.50
Bethlehem,Pa. B2 ..... 5.55
Birmingham C15 ..... 5.275
Clairton,Pa. U5 ..... 5.50
Fairfield,Ala. T2 ..... 5.50
Fontana,Calif. K1 ..... 6.075
Gary,Ind. U5 ..... 5.50
Geneva,Utah C11 ..... 5.50
Houston S5 ..... 5.60
Ind.Harbor,Ind. I-2, Y1 ..... 5.275
Johnstown,Pa. B2 ..... 5.55
Joliet,Ill. P22 ..... 5.275
KansasCity,Mo. S5 ..... 5.60
Lackawanna,N.Y. B2 ..... 5.55
LosAngeles B3 ..... 5.975
Minnequa,Colo. C10 ..... 5.575
Munhall,Pa. U5 ..... 5.50
Niles,Calif. P1 ..... 5.925
Phoenixville,Pa. P4 ..... 5.55
Portland,Oreg. O4 ..... 6.025
Seattle B3 ..... 6.025
S.Chicago,Ill. U5, W14 ..... 5.50
S.SanFrancisco B3 ..... 5.925
Sterling,Ill. N15 ..... 5.275
Torrance,Calif. C11 ..... 5.975
Weirton,W.Va. W6 ..... 5.275

Wide Flange
Bethlehem,Pa. B2 ..... 5.55
Clairton,Pa. U5 ..... 5.50
Fontana,Calif. K1 ..... 6.225
IndianaHarbor,Ind. I-2 ..... 5.275
Lackawanna,N.Y. B2 ..... 5.55
Munhall,Pa. U5 ..... 5.50
Phoenixville,Pa. P4 ..... 5.325
S.Chicago,Ill. U5 ..... 5.50
Weirton,W.Va. W6 ..... 5.275

Alloy Std. Shapes
Aliquippa,Pa. J5 ..... 6.55
Clairton,Pa. U5 ..... 6.55
Gary,Ind. U5 ..... 6.55
Houston S5 ..... 6.65
KansasCity,Mo. S5 ..... 6.65
Munhall,Pa. U5 ..... 6.55
S.Chicago,Ill. U5 ..... 6.55

H.S., L.A. Std. Shapes
Aliquippa,Pa. J5 ..... 7.75
Bessemer,Ala. T2 ..... 8.05
Bethlehem,Pa. B2 ..... 8.10
Clairton,Pa. U5 ..... 8.05
Fairfield,Ala. T2 ..... 8.05
Fontana,Calif. K1 ..... 8.55
Gary,Ind. U5 ..... 8.05
Geneva,Utah C11 ..... 8.05
Houston S5 ..... 8.15
Ind.Harbor,Ind. I-2, Y1 ..... 7.75
Johnstown,Pa. B2 ..... 8.10
KansasCity,Mo. S5 ..... 8.15
Lackawanna,N.Y. B2 ..... 8.10
LosAngeles B3 ..... 8.45
Munhall,Pa. U5 ..... 8.05
Seattle B3 ..... 8.50
S.Chicago,Ill. U5, W14 ..... 8.05
S.SanFrancisco B3 ..... 8.40
Struthers,O. Y1 ..... 7.75

H.S., L.A. Wide Flange
Bethlehem,Pa. B2 ..... 7.80
Lackawanna,N.Y. B2 ..... 7.80
Munhall,Pa. U5 ..... 8.05
S.Chicago,Ill. U5 ..... 8.05

PILING

BEARING PILES
Bethlehem,Pa. B2 ..... 5.55
Lackawanna,N.Y. B2 ..... 5.55
Munhall,Pa. U5 ..... 5.50
S.Chicago,Ill. U5 ..... 5.50

STEEL SHEET PILING
Lackawanna,N.Y. B2 ..... 6.50
Munhall,Pa. U5 ..... 6.50
S.Chicago,Ill. U5 ..... 6.50
Weirton,W.Va. W6 ..... 6.225

PLATES

PLATES, Carbon Steel
AlabamaCity,Ala. R2 ..... 5.10
Aliquippa,Pa. J5 ..... 5.10
Ashland,Ky.(15) A10 ..... 5.10
Atlanta A11 ..... 5.30
Bessemer,Ala. T2 ..... 5.30
Clairton,Pa. U5 ..... 5.30
Claymont,Del. C22 ..... 5.30
Cleveland J5, R2 ..... 5.20
Coatesville,Pa. L7 ..... 5.30
Conshohocken,Pa. A3 ..... 5.10
Ecorse,Mich. G5 ..... 5.10
Fairfield,Ala. T2 ..... 5.30
Fontana,Calif.(30) K1 ..... 5.90
Gary,Ind. U5 ..... 5.30
Geneva,Utah C11 ..... 5.30
GraniteCity,Ill. G4 ..... 5.20
Harrisburg,Pa. P4 ..... 5.30
Houston S5 ..... 5.40
Ind.Harbor,Ind. I-2, Y1 ..... 5.10
Johnstown,Pa. B2 ..... 5.30
Lackawanna,N.Y. B2 ..... 5.30
Mansfield,O. E6 ..... 5.10
Minnequa,Colo. C10 ..... 5.95
Munhall,Pa. U5 ..... 5.30
Newport,Ky. A2 ..... 5.10
Pittsburgh J5 ..... 5.10
Riverdale,Ill. A1 ..... 5.10
Seattle B3 ..... 6.00
Sharon,Pa. S3 ..... 5.10
S.Chicago,Ill. U5, W14 ..... 5.30
SparrowsPoint,Md. B2 ..... 5.30
Sterling,Ill. N15 ..... 5.10
Steubenville,O. W10 ..... 5.10
Warren,O. R2 ..... 5.10
Youngstown U5 ..... 5.30

PLATES, Carbon Abras. Resist.
Claymont,Del. C22 ..... 6.75
Fontana,Calif. K1 ..... 7.55
Geneva,Utah C11 ..... 7.05
Houston S5 ..... 6.85
Johnstown,Pa. B2 ..... 7.05
SparrowsPoint,Md. B2 ..... 7.05

PLATES, Wrought Iron
Economy,Pa. B14 ..... 13.15

PLATES, H.S., L.A.
Aliquippa,Pa. J5 ..... 7.625
Bessemer,Ala. T2 ..... 7.95
Clairton,Pa. U5 ..... 7.95
Claymont,Del. C22 ..... 7.95
Cleveland J5, R2 ..... 7.625
Coatesville,Pa. L7 ..... 7.625
Conshohocken,Pa. A3 ..... 7.625
Economy,Pa. B14 ..... 7.625
Ecorse,Mich. G5 ..... 7.625
Fairfield,Ala. T2 ..... 7.95
Farrell,Pa. S3 ..... 7.625
Fontana,Calif.(30) K1 ..... 8.425
Gary,Ind. U5 ..... 7.95
Geneva,Utah C11 ..... 7.95
Houston S5 ..... 8.05
Ind.Harbor,Ind. I-2, Y1 ..... 7.625
Johnstown,Pa. B2 ..... 7.95
Munhall,Pa. U5 ..... 7.95
Pittsburgh J5 ..... 7.625
Seattle B3 ..... 8.525
Sharon,Pa. S3 ..... 7.625
S.Chicago,Ill. U5, W14 ..... 7.95
SparrowsPoint,Md. B2 ..... 7.95
Warren,O. R2 ..... 7.625
Youngstown U5 ..... 7.95

PLATES, ALLOY
Aliquippa,Pa. J5 ..... 7.20
Claymont,Del. C22 ..... 7.20
Coatesville,Pa. L7 ..... 7.20
Economy,Pa. B14 ..... 7.20
Fontana,Calif. K1 ..... 8.00
Gary,Ind. U5 ..... 7.80
Houston S5 ..... 7.30
Ind.Harbor,Ind. Y1 ..... 7.20
Johnstown,Pa. B2 ..... 7.20
Lowellville,O. S3 ..... 7.20
Munhall,Pa. U5 ..... 7.50
Newport,Ky. A2 ..... 7.20
Pittsburgh J5 ..... 7.20
Seattle B3 ..... 8.10
Sharon,Pa. S3 ..... 7.20
S.Chicago,Ill. U5, W14 ..... 7.50
SparrowsPoint,Md. B2 ..... 7.20
Youngstown Y1 ..... 7.20

FLOOR PLATES
Cleveland J5 ..... 6.175
Conshohocken,Pa. A3 ..... 6.175
Ind.Harbor,Ind. I-2 ..... 6.175
Munhall,Pa. U5 ..... 6.375
S.Chicago,Ill. U5 ..... 6.375

PLATES, Ingot Iron
Ashland c.l.(15) A10 ..... 5.35
Ashland l.c.l(15) A10 ..... 5.85
Cleveland c.l. R2 ..... 5.85
Warren,O. c.l. R2 ..... 5.85

BARS

BARS, Hot-Rolled Carbon (Merchant Quality)
Ala.City,Ala.(9) R2 ..... 5.675
Aliquippa,Pa.(9) J5 ..... 5.675
Alton,Ill. L1 ..... 5.625
Atlanta(9) A11 ..... 5.625
Bessemer,Ala.(9) T2 ..... 5.425
Birmingham(9) C15 ..... 5.425
Buffalo(9) R2 ..... 5.675
Canton,O.(23) R2 ..... 6.15
Clairton,Pa.(9) U5 ..... 5.675
Cleveland(9) R2 ..... 5.675
Ecorse,Mich.(9) G5 ..... 5.675
Emeryville,Calif. J7 ..... 6.175
Fairfield,Ala.(9) T2 ..... 5.675
Fairless,Pa.(9) U5 ..... 5.825
Fontana,Calif.(9) K1 ..... 6.125
Gary,Ind.(9) U5 ..... 5.675
Houston(9) S5 ..... 5.925
Ind.Harbor(9) I-2, Y1 ..... 5.675
Johnstown,Pa.(9) B2 ..... 5.675
Joliet,Ill. P22 ..... 5.675
KansasCity,Mo.(9) S5 ..... 5.925
Lackawanna(9) B2 ..... 5.675
LosAngeles(9) B3 ..... 6.125
Massillon,O.(23) R2 ..... 6.15
Midland,Pa.(23) C18 ..... 5.725
Milton,Pa. M18 ..... 5.575
Minnequa,Colo. C10 ..... 5.875
Niles,Calif. P1 ..... 6.125
N.T'wanda,N.Y.(23)B11 5.775
Owensboro,Ky.(9) G8 ..... 5.425
Pittsburg,Calif.(9) C11 ..... 6.375
Pittsburgh(9) J5 ..... 5.675
Portland,Oreg. O4 ..... 6.175
Seattle B3, N14 ..... 6.175
S.Ch'c'go(9)R2,U5,W14 ..... 5.675
S.Duquesne,Pa.(9) U5 ..... 5.675
S.SanFran.,Calif.(9)B3 ..... 6.175
Sterling,Ill.(1)(9) N15 ..... 5.425
Sterling,Ill.(9) N15 ..... 5.525
Struthers,O.(9) Y1 ..... 5.675
Tonawanda,N.Y. B12 ..... 5.425
Torrance,Calif.(9) C11 ..... 6.375
Warren,O. C17 ..... 6.025
Youngstown(9) R2, U5 ..... 5.675

BARS, Hot-Rolled Alloy
Aliquippa,Pa. J5 ..... 6.725
Bethlehem,Pa. B2 ..... 6.725
Bridgeport,Conn. C32 ..... 6.55
Buffalo R2 ..... 6.725
Canton,O. R2, T7 ..... 6.725
Clairton,Pa. U5 ..... 6.725
Detroit S41 ..... 6.475
Economy,Pa. B14 ..... 6.475
Ecorse,Mich. G5 ..... 6.725
Fairless,Pa. U5 ..... 6.875
Farrell,Pa. S3 ..... 6.475
Fontana,Calif. K1 ..... 7.525
Gary,Ind. U5 ..... 6.725
Houston S5 ..... 6.975
Ind.Harbor,Ind. I-2, Y1 ..... 6.725
Johnstown,Pa. B2 ..... 6.725
KansasCity,Mo. S5 ..... 6.975
Lackawanna,N.Y. B2 ..... 6.725
Lowellville,O. S3 ..... 6.475
LosAngeles B3 ..... 7.525
Massillon,O. R2 ..... 6.725
Midland,Pa. C18 ..... 6.475
Owensboro,Ky. G8 ..... 6.475
Pittsburgh J5 ..... 6.725
Sharon,Pa. S3 ..... 6.475
S.Chicago R2, U5, W14 ..... 6.725
S.Duquesne,Pa. U5 ..... 6.725
Struthers,O. Y1 ..... 6.725
Warren,O. C17 ..... 6.725
Youngstown U5 ..... 6.725

BARS & SMALL SHAPES, H.R. High-Strength, Low-Alloy
Aliquippa,Pa. J5 ..... 7.925
Bessemer,Ala. T2 ..... 7.925
Bethlehem,Pa. B2 ..... 7.925
Clairton,Pa. U5 ..... 7.925
Cleveland R2 ..... 8.00
Ecorse,Mich. G5 ..... 8.175
Fairfield,Ala. T2 ..... 7.925
Fontana,Calif. K1 ..... 8.625
Gary,Ind. U5 ..... 7.925
Houston S5 ..... 8.175
Ind.Harbor,Ind. Y1 ..... 7.925
Johnstown,Pa. B2 ..... 7.925
KansasCity,Mo. S5 ..... 8.175
Lackawanna,N.Y. B2 ..... 7.925
LosAngeles B3 ..... 8.625
Pittsburgh J5 ..... 7.925
Seattle B3 ..... 8.675
S.Chicago,Ill U5, W14 ..... 7.925
S.Duquesne,Pa. U5 ..... 7.925
S.SanFrancisco B3 ..... 8.675
Struthers,O. Y1 ..... 7.925
Youngstown U5 ..... 7.925

BAR SIZE ANGLE; H.R. Carbon
Bethlehem,Pa.(9) B2 ..... 5.825
Houston(9) S5 ..... 5.925
KansasCity,Mo.(9) S5 ..... 5.925
Lackawanna(9) B2 ..... 5.675
Sterling,Ill. N15 ..... 5.525
Sterling,Ill(1) N15 ..... 5.425
Tonawanda,N.Y. B12 ..... 5.425

BAR SIZE ANGLES; S. Shapes
Aliquippa,Pa. J5 ..... 5.675
Atlanta A11 ..... 5.625
Joliet,Ill. P22 ..... 5.675
Niles,Calif. P1 ..... 6.125
Pittsburgh J5 ..... 5.675
Portland,Oreg. O4 ..... 6.175
SanFrancisco S7 ..... 6.275
Seattle B3 ..... 6.175

BAR SHAPES, Hot-Rolled Alloy
Aliquippa,Pa. J5 ..... 6.55
Clairton,Pa. U5 ..... 6.80
Gary,Ind. U5 ..... 6.80
Houston S5 ..... 7.05
KansasCity,Mo. S5 ..... 7.05
Pittsburgh J5 ..... 6.55
Youngstown U5 ..... 6.80

BARS, C.F., Leaded Alloy (Including leaded extra)
Ambridge,Pa. W18 ..... 9.925
BeaverFalls,Pa. M12 ..... 10.175
Camden,N.J. P13 ..... 10.35
Chicago W18 ..... 9.925
Cleveland C20 ..... 9.925*
Elyria,O. W8 ..... 9.925
LosAngeles F2, S30 ..... 11.40*
Monaca,Pa. S17 ..... 9.925
Newark,N.J. W18 ..... 10.10
SpringCity,Pa. K3 ..... 10.35

*Grade A; add 0.050c for Grade B.

BARS, Cold-Finished Carbon
Ambridge,Pa. W18 ..... 7.65
BeaverFalls,Pa. M12,R2 ..... 7.65
Birmingham C15 ..... 7.90
Buffalo B5 ..... 7.70
Camden,N.J. P13 ..... 8.10
Carnegie,Pa. C12 ..... 7.30
Chicago W18 ..... 7.30
Cleveland A7, C20 ..... 7.65
Detroit B5, P17 ..... 7.85
Detroit S41 ..... 7.30
Donora,Pa. A7 ..... 7.65
Elyria,O. W8 ..... 7.30
FranklinPark,Ill. N5 ..... 7.30
Gary,Ind. R2 ..... 7.65
GreenBay,Wis. F7 ..... 7.30
Hammond,Ind. J5, L2 ..... 7.65
Hartford,Conn. R2 ..... 8.15
Harvey,Ill. B5 ..... 7.65
LosAngeles(49) S30 ..... 8.75
LosAngeles(49) P2, R2 ..... 9.10
Mansfield,Mass. B2 ..... 8.20
Massillon,O. R2, R8 ..... 7.65
Midland,Pa. C18 ..... 7.30
Monaca,Pa. S17 ..... 7.30
Newark,N.J. W18 ..... 8.10
NewCastle,Pa.(17) B4 ..... 7.30
Pittsburgh J5 ..... 7.65
Plymouth,Mich. P5 ..... 7.90
Putnam,Conn. W18 ..... 8.20
Readville,Mass. C14 ..... 7.85
S.Chicago,Ill. W14 ..... 7.65
SpringCity,Pa. K3 ..... 8.10
Struthers,O. Y1 ..... 7.65
Warren,O. C17 ..... 7.65
Willimantic,Conn. J5 ..... 8.15
Waukegan,Ill. A7 ..... 7.65
Youngstown F3, Y1 ..... 7.65

BARS, Cold-Finished Carbon (Turned and Ground)
Cumberland,Md.(5) C19 ..... 6.55

BARS, Cold-Finished Alloy
Ambridge,Pa. W18 ..... 9.025
BeaverFalls,Pa. M12,R2 ..... 9.025
Bethlehem,Pa. B2 ..... 9.025
Bridgeport,Conn. C32 ..... 8.925
Buffalo B5 ..... 9.025
Camden,N.J. P13 ..... 9.20
Canton,O. T7 ..... 8.775
Carnegie,Pa. C12 ..... 8.775
Chicago W18 ..... 8.775
Cleveland A7, C20 ..... 8.775
Detroit B5, P17 ..... 9.225
Detroit S41 ..... 8.775
Donora,Pa. A7 ..... 8.775
Elyria,O. W8 ..... 8.775
FranklinPark,Ill. N5 ..... 8.775
Gary,Ind. R2 ..... 9.025
GreenBay,Wis. F7 ..... 8.775
Hammond,Ind. J5, L2 ..... 9.025
Hartford,Conn. R2 ..... 9.325
Harvey,Ill. B5 ..... 9.025
Lackawanna,N.Y. B2 ..... 9.025
LosAngeles P2, S30 ..... 10.75
Mansfield,Mass. B5 ..... 9.325
Massillon,O. R2, R8 ..... 9.025
Midland,Pa. C18 ..... 8.775
Monaca,Pa. S17 ..... 8.775
Newark,N.J. W18 ..... 9.20
Plymouth,Mich. P5 ..... 9.225
S.Chicago,Ill. W14 ..... 9.025
SpringCity,Pa. K3 ..... 9.20
Struthers,O. Y1 ..... 9.025
Warren,O. C17 ..... 9.025
Waukegan,Ill. A7 ..... 8.775
Willimantic,Conn. J5 ..... 9.325
Worcester,Mass. A7 ..... 9.075
Youngstown F3, Y1 ..... 9.025

BARS, Reinforcing (To fabricators)

AlabamaCity,Ala. R2	*5.675*
Atlanta A11	5.425
Birmingham C15	5.425
Buffalo R2	*5.675*
Cleveland R2	*5.675*
Ecorse,Mich. G5	*5.675*
Emeryville,Calif. J7	6.175
Fairfield,Ala. T2	*5.675*
Fairless,Pa. U5	*5.825*
Fontana,Calif. K1	6.125
Ft.Worth,Tex.(4)(26)T15	5.875
Gary,Ind. U5	*5.675*
Houston S5	*5.925*
Ind.Harbor,Ind. I-2, Y1	*5.675*
Johnstown,Pa. B2	*5.675*
Joliet,Ill. P22	*5.675*
KansasCity,Mo. S5	*5.925*
Kokomo,Ind. C16	5.525
Lackawanna,N.Y. B2	*5.675*
LosAngeles B3	6.125
Madison,Ill. L1	5.625
Milton,Pa. M18	5.575
Minnequa,Colo. C10	5.875
Niles,Calif. P1	6.125
Pittsburg,Calif. C11	*6.375*
Pittsburgh J5	*5.675*
Portland,Oreg. O4	6.175
SandSprings,Okla. S5	5.925
Seattle B3, N14	6.175
S.Chicago,Ill. R2, W14	*5.675*
S.Duquesne,Pa. U5	*5.675*
S.SanFrancisco B3	6.175
SparrowsPoint,Md. B2	*5.675*
Sterling,Ill.(1) N15	5.425
Sterling,Ill. N15	5.525
Struthers,O. Y1	*5.675*
Tonawanda,N.Y. B12	6.00
Torrance,Calif. C11	*6.375*
Youngstown R2, U5	*5.675*

BARS, Reinforcing (Fabricated; to Consumers)

Boston B2, U8	7.65
Chicago U8	6.91
Cleveland U8	6.89
Houston S5	7.35
Johnstown,Pa. B2	7.08
KansasCity,Mo. S5	7.35
Lackawanna,N.Y. B2	6.85
Marion,O. P11	6.70
Newark,N.J. U8	7.55
Philadelphia U8	7.38
Pittsburgh J5, U8	7.10
SandSprings,Okla. S5	7.60
Seattle B3, N14	7.70
SparrowsPt.,Md. B2	7.08
St.Paul U8	7.92
Williamsport,Pa. S19	7.00

BARS, Wrought Iron

Economy,Pa.(S.R.)B14	14.45
Economy,Pa.(D.R.)B14	18.00
Economy(Staybolt)B14	18.45

RAIL STEEL BARS

ChicagoHts.(3) C2, I-2	*5.575*
ChicagoHts.(4)(44) I-2	*5.675*
ChicagoHts.(4) C2	5.425
Franklin,Pa.(3) F5	5.325
Franklin,Pa.(4) F5	5.425
JerseyShore,Pa.(3) J8	5.30
Marion,O.(3) P11	5.325
Tonawanda(3) B12	5.325
Tonawanda(4) B12	6.00
Williamsport,Pa.(3) S19	5.50

SHEETS

SHEETS, Hot-Rolled Steel (18 Gage and Heavier)

AlabamaCity,Ala. R2	*5.10*
Allenport,Pa. P7	*5.10*
Aliquippa,Pa. J5	*5.10*
Ashland,Ky.(8) A10	*5.10*
Cleveland J5, R2	*5.10*
Coushohocken,Pa. A3	*5.15*
Detroit(8) M1	*5.10*
Ecorse,Mich. G5	*5.10*
Fairfield,Ala. T2	*5.10*
Fairless,Pa. U5	*5.15*
Fontana,Calif. K1	5.675
Gary,Ind. U5	*5.10*
Geneva, Utah C11	*5.20*
GraniteCity,Ill.(8) G4	*5.20*
Ind.Harbor,Ind. I-2, Y1	*5.10*
Irvin,Pa. U5	*5.10*
Lackawanna,N.Y. B2	*5.10*
Mansfield,O. E6	4.925
Munhall,Pa. U5	*5.10*
Newport,Ky.(8) A2	4.925
Niles,O. M21, S3	*5.10*
Pittsburg,Calif. C11	*5.80*
Pittsburgh J5	*5.10*
Portsmouth,O. P12	*5.10*
Riverdale,Ill. A1	*5.10*
Sharon,Pa. S3	*5.10*
S.Chicago,Ill. U5, W14	*5.10*
SparrowsPoint,Md. B2	*5.10*
Steubenville,O. W10	*5.10*
Warren,O. R2	*5.10*
Weirton,W.Va. W6	*5.10*
Youngstown U5, Y1	*5.10*

SHEETS, H.R. (19 Ga. & Lighter)

Niles,O. M21	6.05

SHEETS, H.R. Alloy

Gary,Ind. U5	8.10
Ind.Harbor,Ind. Y1	8.10
Irvin,Pa. U5	8.10
Munhall,Pa. U5	8.10
Newport,Ky. A2	8.10
Youngstown U5, Y1	8.10

SHEETS, H.R. (14 Ga. & Heavier) High-Strength, Low-Alloy

Aliquippa,Pa. J5	*7.525*
Cleveland J5, R2	*7.525*
Coushohocken,Pa. A3	*7.575*
Ecorse,Mich. G5	*7.525*
Fairfield,Ala. T2	*7.525*
Fairless,Pa. U5	*7.575*
Farrell,Pa. S8	*7.525*
Fontana,Calif. K1	8.025
Gary,Ind. U5	*7.525*
Ind.Harbor,Ind. I-2, Y1	*7.525*
Irvin,Pa. U5	*7.525*
Lackawanna(35) B2	*7.525*
Munhall,Pa. U5	*7.525*
Pittsburgh J5	*7.525*
S.Chicago,Ill. U5, W14	*7.525*
Sharon,Pa. S3	*7.525*
SparrowsPoint(36) B2	*7.525*
Warren,O. R2	*7.525*
Weirton,W.Va. W6	*7.525*
Youngstown U5, Y1	*7.525*

SHEETS, Hot-Rolled Ingot Iron (18 Gage and Heavier)

Ashland,Ky.(8) A10	*5.35*
Cleveland R2	*5.875*
Warren,O. R2	*5.875*

SHEETS, Cold-Rolled Ingot Iron

Cleveland R2	*7.05*
Middletown,O. A10	*6.775*
Warren,O. R2	*7.05*

SHEETS, Cold-Rolled Steel (Commercial Quality)

AlabamaCity,Ala. R2	*6.275*
Allenport,Pa. P7	*6.275*
Aliquippa,Pa. J5	*6.275*
Cleveland J5, R2	*6.275*
Coushohocken,Pa. A3	*6.325*
Detroit M1	*6.275*
Ecorse,Mich. G5	*6.275*
Fairfield,Ala. T2	*6.275*
Fairless,Pa. U5	*6.325*
Follansbee,W.Va. F4	*6.275*
Fontana,Calif. K1	7.30
Gary,Ind. U5	*6.275*
GraniteCity,Ill. G4	*6.325*
Ind.Harbor,Ind. I-2, Y1	*6.275*
Irvin,Pa. U5	*6.275*
Lackawanna,N.Y. B2	*6.275*
Mansfield,O. E6	6.05
Middletown,O. A10	*6.275*
Newport,Ky. A2	6.05
Pittsburg,Calif. C11	*7.225*
Pittsburgh J5	*6.275*
Portsmouth,O. P12	*6.275*
SparrowsPoint,Md. B2	*6.275*
Steubenville,O. W10	*6.275*
Warren,O. R2	*6.275*
Weirton,W.Va. W6	*6.275*
Yorkville,O. W10	*6.275*
Youngstown Y1	*6.275*

SHEETS, Cold-Rolled, High-Strength, Low Alloy

Aliquippa,Pa. J5	*9.275*
Cleveland J5, R2	*9.275*
Ecorse,Mich. G5	*9.275*
Fairless,Pa. U5	*9.325*
Fontana,Calif. K1	10.275
Gary,Ind. U5	*9.275*
Ind.Harbor,Ind. I-2, Y1	*9.275*
Irvin,Pa. U5	*9.275*
Lackawanna(37) B2	*9.275*
Pittsburgh J5	*9.275*
SparrowsPoint(38) B2	*9.275*
Warren,O. R2	*9.275*
Weirton,W.Va. W6	*9.275*
Youngstown Y1	*9.275*

SHEETS, Culvert

	Cu Steel	Cu Fo
Ashland,Ky. A10	*7.225*	*7.475*
Canton,O. R2	*7.225*	*7.75*
Fairfield T2	*7.225*	*7.475*
Gary,Ind. U5	*7.225*	*7.475*
GraniteCity,Ill. G4	*7.325*	
Ind.Harbor I-2	*7.225*	*7.475*
Irvin,Pa. U5	*7.225*	*7.475*
Kokomo,Ind. C16	*7.325*	
MartinsFry. W10	*7.225*	*7.475*
Pitts.Calif. C11	*7.975*	
Pittsburgh J5	*7.225*	
SparrowsPt. B2	*7.225*	

SHEETS, Culvert—Pure Iron

Ind.Harbor,Ind. I-2	*7.475*

SHEETS, Galvanized Steel Hot-Dipped

AlabamaCity,Ala. R2	*6.875‡*
Ashland,Ky. A10	*6.875‡*
Canton,O. R2	*6.875‡*
Dover,O. E6	6.60†
Fairfield,Ala. T2	*6.875†*
Gary,Ind. U5	*6.875†*
GraniteCity,Ill. G4	*6.975**
Ind.Harbor,Ind. I-2	*6.875†*
Irvin,Pa. U5	*6.875†*
Kokomo,Ind. C16	*6.975‡*
MartinsFerry,O. W10	*6.875**
Middletown,O. A10	*6.875†*
Pittsburgh,Calif. C11	*7.625**
Pittsburgh J5	*6.875†*
SparrowsPt.,Md. B2	*6.875†*
Warren,O. R2	*6.875†*
Weirton,W.Va. W6	*6.875**

*Continuous and noncontinuous. †Continuous. ‡Noncontinuous.

SHEETS, Well Casing

Fontana,Calif. K1	7.175

SHEETS, Galvanized High-Strength, Low-Alloy

Irvin,Pa. U5	*10.025*
SparrowsPt.(39) B2	*10.025*
Pittsburgh J5	*10.025*

SHEETS, Galvannealed Steel

Canton,O. R2	*7.275*
Irvin,Pa. U5	*7.275*

SHEETS, Galvanized Ingot Iron (Hot-Dipped Continuous)

Ashland,Ky. A10	*7.125*
Middletown,O. A10	*7.125*

SHEETS, Electrogalvanized

Cleveland(28) R2	*7.65*
Niles,O.(28) R2	*7.65*
Youngstown J5	*7.50*
Weirton,W.Va. W6	*7.50*

SHEETS, Aluminum Coated

Butler,Pa. A10 (type 1)	*9.525*
Butler,Pa. A10 (type 2)	*9.625*

SHEETS, Enameling Iron

Ashland,Ky. A10	*6.775*
Cleveland R2	*6.775*
Fairfield,Ala. T2	*6.775*
Gary,Ind. U5	*6.775*
GraniteCity,Ill. G4	*6.875*
Ind.Harbor,Ind. I-2, Y1	*6.775*
Irvin,Pa. U5	*6.775*
Middletown,O. A10	*6.775*
Niles,O. M21, S3	6.625
Youngstown Y1	*6.775*

BLUED STOCK, 29 Gage

Follansbee,W.Va. F4	*8.70*
Ind.Harbor,Ind. I-2	*8.70*
Yorkville,O. W10	8.475

SHEETS, Long Terne, Steel (Commercial Quality)

BeechBottom,W.Va. W10	*7.225*
Gary,Ind. U5	*7.225*
Mansfield,O. E6	7.00
Middletown,O. A10	*7.225*
Niles,O. M21, S3	7.00
Warren,O. R2	*7.225*
Weirton,W.Va. W6	*7.225*

SHEETS, Long Terne, Ingot Iron

Middletown,O. A10	*7.625*

Key To Producers

A1 Acme Steel Co.
A2 Acme-Newport Steel Co.
A3 Alan Wood Steel Co.
A4 Allegheny Ludlum Steel
A5 Alloy Metal Wire Div., H. K. Porter Co. Inc.
A6 American Shim Steel Co.
A7 American Steel & Wire Div., U. S. Steel Corp.
A8 Anchor Drawn Steel Co.
A9 Angell Nail & Chaplet
A10 Armco Steel Corp.
A11 Atlantic Steel Co.

B1 Babcock & Wilcox Co.
B2 Bethlehem Steel Co.
B3 Beth. Pac. Coast Steel
B4 Blair Strip Steel Co.
B5 Bliss & Laughlin Inc.
B8 Braeburn Alloy Steel
B9 Brainard Steel Div., Sharon Steel Corp.
B10 E. & G. Brooke, Wickwire Spencer Steel Div., Colo. Fuel & Iron
B11 Buffalo Bolt Co., Div., Buffalo Eclipse Corp.
B12 Buffalo Steel Corp.
B14 A. M. Byers Co.
B15 J. Bishop & Co.

C1 Calstrip Steel Corp.
C2 Calumet Steel Div., Borg-Warner Corp.
C4 Carpenter Steel Co.
C9 Colonial Steel Co.
C10 Colorado Fuel & Iron
C11 Columbia-Geneva Steel
C12 Columbia Steel & Shaft.
C13 Columbia Tool Steel Co.
C14 Compressed Steel Shaft.
C15 Connors Steel Div. H. K. Porter Co. Inc.
C16 Continental Steel Corp.
C17 Copperweld Steel Co.
C18 Crucible Steel Co.
C19 Cumberland Steel Co.
C20 Cuyahoga Steel & Wire
C22 Claymont Plant, Wickwire Spencer Steel Div., Colo. Fuel & Iron
C23 Charter Wire Inc.
C24 G. O. Carlson Inc.
C32 CarpenterSteelofN.Eng.

D2 Detroit Steel Corp.
D3 Dearborn Div., Sharon Steel Corp.
D4 Disston Div., H. K. Porter Co. Inc.
D6 Driver-Harris Co.
D7 Dickson Weatherproof Nail Co.
D8 Damascus Tube Co.
D9 Wilbur B. Driver Co.

E1 Eastern Gas&FuelAssoc.
E2 Eastern Stainless Steel
E4 Electro Metallurgical Co.
E5 Elliott Bros. Steel Co.
E6 Empire-Reeves Steel Corp.

F2 Firth Sterling Inc.
F3 Fitzsimmons Steel Co.
F4 Follansbee Steel Corp.
F5 Franklin Steel Div., Borg-Warner Corp.
F6 Fretz-Moon Tube Co.
F7 Ft. Howard Steel & Wire
F8 Ft. Wayne Metals Inc.

G4 Granite City Steel Co.
G5 Great Lakes Steel Corp.
G6 Greer Steel Co.
G8 Green River Steel Corp.

H1 Hanna Furnace Corp.
H7 Helical Tube Co.

I-1 Igoe Bros. Inc.
I-2 Inland Steel Co.
I-3 Interlake Iron Corp.
I-4 Ingersoll Steel Div., Borg-Warner Corp.
I-6 Ivins Steel Tube Works
I-7 Indiana Steel & Wire Co.

J1 Jackson Iron & Steel Co.
J3 Jessop Steel Co.
J4 Johnson Steel & Wire Co.
J5 Jones & Laughlin Steel
J6 Joslyn Mfg. & Supply
J7 Judson Steel Corp.
J8 Jersey Shore Steel Co.

K1 Kaiser Steel Corp.
K2 Keokuk Electro-Metals
K3 Keystone Drawn Steel
K4 Keystone Steel & Wire
K7 Kenmore Metals Corp.

L1 Laclede Steel Co.
L2 LaSalle Steel Co.
L3 Latrobe Steel Co.
L6 Lone Star Steel Co.
L7 Lukens Steel Co.
L8 Leschen Wire Rope Div., H. K. Porter Co. Inc.

M1 McLouth Steel Corp.
M4 Mahoning Valley Steel
M6 Mercer Pipe Div., Sawhill Tubular Products
M8 Mid-States Steel & Wire
M12 Moltrup Steel Products
M14 McInnes Steel Co.
M16 Md.Fine&Special.Wire
M17 Metal Forming Corp.
M18 Milton Steel Div., Merritt-Chapman&Scott
M21 Mallory-Sharon Metals Corp.
M22 Mill Strip Products Co.

N1 National-Standard Co.
N2 National Supply Co.
N3 National Tube Div., U. S. Steel Corp.
N5 Nelsen Steel & Wire Co.
N6 New England High Carbon Wire Co.
N8 Newman-Crosby Steel
N14 Northwest. Steel Rolling Mills Inc.
N15 Northwestern S.&W.Co.
N20 Neville Ferro Alloy Co.

O4 Oregon Steel Mills

P1 Pacific States Steel Corp.
P2 Pacific Tube Co.
P4 Phoenix Iron & Steel Co., Sub. of Barium Steel Corp.
P5 Pilgrim Drawn Steel
P6 Pittsburgh Coke & Chem.
P7 Pittsburgh Steel Co.
P11 Pollak Steel Co.
P12 Portsmouth Div., Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pitts. Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., American Chain & Cable
P17 Plymouth Steel Corp.
P19 Pitts. Rolling Mills
P20 Prod. Steel Strip Corp.
P22 Phoenix Mfg. Co.
P24 Phil. Steel & Wire Corp.

R2 Republic Steel Corp.
R3 Rhode Island Steel Corp.
R5 Roebling's Sons, John A.
R6 Rome Strip Steel Co.
R8 Reliance Div., Eaton Mfg.
R9 Rome Mfg. Co.
R10 Rodney Metals Inc.

S1 Seneca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S4 Sharon Tube Co.
S5 Sheffield Div., Armco Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S12 Spencer Wire Corp.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S17 Superior Drawn Steel Co.
S18 Superior Steel Div., Copperweld Steel Co.
S19 Sweet's Steel Co.
S20 Southern States Steel
S23 Superior Tube Co.
S25 Stainless Welded Prod.
S26 Specialty Wire Co. Inc.
S30 Sierra Drawn Steel Corp.
S40 Seneca Steel Service
S41 Stainless Steel Div., J&L Steel Corp.
S42 Southern Elec. Steel Co.

T2 Tenn. Coal & Iron Div., U. S. Steel Corp.
T3 Tenn. Products & Chemical Corp.
T4 Texas Steel Co.
T5 Thomas Strip Div., Pittsburgh Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div., Am. Rad. & Stan. San.
T13 Tube Methods Inc.
T19 Techalloy Co. Inc.

U4 Universal-Cyclops Steel
U5 United States Steel Corp.
U6 U. S. Pipe & Foundry
U7 Ulbrich Stainless Steels
U8 U. S. Steel Supply Div., U. S. Steel Corp.
V2 Vanadium-Alloys Steel
V3 Vulcan-Kidd Steel Div., H. K. Porter Co.
W1 Wallace Barnes Steel Div., Associated Spring Corp.
W2 Wallingford Steel Co.
W3 Washburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W8 Western Automatic Machine Screw Co.
W9 Wheatland Tube Co.
W10 Wheeling Steel Corp.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel & Wire Co.
W14 Wisconsin Steel Div., International Harvester
W15 Woodward Iron Co.
W18 Wyckoff Steel Co.
Y1 Youngstown Sheet & Tube

STRIP

STRIP, Hot-Rolled Carbon

Ala.City,Ala.(27) R2	*5.10*
Allenport,Pa. P7	*5.10*
Alton, Ill. L1	5.125
Ashland,Ky.(8) A10	*5.10*
Atlanta A11	4.925
Bessemer,Ala. T2	*5.10*
Birmingham C15	4.925
Buffalo(27) R2	*5.10*
Conshohocken,Pa. A3	*5.15*
Detroit M1	*5.10*
Ecorse,Mich. G5	*5.10*
Fairfield,Ala. T2	*5.10*
Fontana,Calif. K1	5.675
Gary,Ind. U5	*5.10*
Ind.Harbor,Ind. I-2, Y1	*5.10*
Johnstown,Pa.(25) B2	*5.10*
Lackawa'na,N.Y.(25) B2	*5.10*
LosAngeles(25) B3	*5.85*
Minnequa,Colo. C10	6.025
RiverDale,Ill. A1	*5.10*
SanFrancisco S7	6.35
Seattle(25) B3	*6.10*
Seattle N14	6.35
Sharon,Pa. S3	*5.10*
S.Chicago W14	*5.10*
S.SanFrancisco(25) B3	*5.85*
SparrowsPoint,Md. B2	*5.10*
Sterling,Ill.(1) N15	4.925
Sterling,Ill. N15	5.025
Torrance,Calif. C11	*5.85*
Warren,O. R2	*5.10*
Weirton,W.Va. W6	*5.10*
Youngstown U5	*5.10*

STRIP, Hot-Rolled Alloy

Carnegie,Pa. S18	8.10
Farrell,Pa. S3	8.10
Gary,Ind. U5	8.10
Houston S5	8.35
Ind.Harbor,Ind. Y1	8.10
KansasCity,Mo. S5	8.35
LosAngeles B3	9.30
Lowellville,O. S3	8.10
Newport,Ky. A2	8.10
Sharon,Pa. A2, S3	8.10
S.Chicago,Ill. W14	8.10
Youngstown U5, Y1	8.10

STRIP, Hot-Rolled High-Strength, Low-Alloy

Bessemer,Ala. T2	*7.525*
Conshohocken,Pa. A3	*7.525*
Ecorse,Mich. G5	*7.525*
Fairfield,Ala. T2	*7.525*
Farrell,Pa. S3	*7.525*
Gary,Ind. U5	*7.525*
Ind.Harbor,Ind. I-2, Y1	*7.525*
Lackawanna,N.Y. B2	*7.525*
LosAngeles(25) B3	*8.325*
Seattle(25) B3	*8.525*
Sharon,Pa. S3	*7.525*
S.Chicago,Ill. W14	7.325
S.SanFrancisco(25) B3	*8.325*
SparrowsPoint,Md. B2	*7.525*
Warren,O. R2	*7.525*
Weirton,W.Va. W6	*7.525*
Youngstown U5, Y1	*7.525*

STRIP, Hot-Rolled Ingot Iron

Ashland,Ky.(8) A10	*5.35*
Warren,O. R2	*5.875*

STRIP, Cold-Rolled Carbon

Anderson,Ind. G6	*7.425*
Baltimore T6	7.15
Boston T6	7.70
Buffalo S40	7.15
Cleveland A7, J5	*7.425*
Dearborn,Mich. D3	*7.425*
Detroit D2, M1, P20	*7.425*
Dover,O. G6	*7.425*
Ecorse,Mich. G5	7.15
Evanston,Ill. M22	*7.525*
Follansbee,W.Va. F4	*7.425*
Fontana,Calif. K1	9.00
FranklinPark,Ill. T6	7.25
Ind.Harbor,Ind. Y1	*7.425*
Indianapolis J5	*7.575*
LosAngeles J5	*9.325*
LosAngeles C1	9.20
NewBedford,Mass. R10	7.60
NewBritain,Conn. S15	7.60
NewCastle,Pa. B4, E5	7.15
NewHaven,Conn. D2	*7.875*
NewKensington,Pa. A6	7.15
Pawtucket,R.I. R3	7.80
Pawtucket,R.I. N8	7.70
Philadelphia P24	7.70
Pittsburgh J5	*7.425*
Riverdale,Ill. A1	*7.525*
Rome,N.Y.(32) R6	7.15
Sharon,Pa. S3	*7.425*
Trenton,N.J.(31) R5	8.60
Wallingford,Conn. W2	7.60
Warren,O. R2, T5	*7.425*
Weirton,W.Va. W6	*7.425*
Worcester,Mass. A7	*7.975*
Youngstown J5, Y1	*7.425*

STRIP, Cold-Rolled Alloy

Boston T6	15.40
Carnegie,Pa. S18	15.05
Cleveland A7	15.05
Dover,O. G6	15.05
Farrell,Pa. S3	15.05
FranklinPark,Ill. T6	15.05
Harrison,N.J. C18	15.05
Indianapolis J5	15.20
Lowellville,O. S3	15.05
Pawtucket,R.I. N8	15.40
Riverdale,Ill. A1	15.05
Sharon,Pa. S3	15.05
Worcester,Mass. A7	15.35
Youngstown J5	15.05

STRIP, Cold-Rolled High-Strength, Low-Alloy

Cleveland A7	*10.80*
Dearborn,Mich. D3	*10.80*
Dover,O. G6	10.45
Ecorse,Mich. G5	10.50
Farrell,Pa. S3	*10.80*
Ind.Harbor,Ind. Y1	*11.00*
Sharon,Pa. S3	*10.80*
Warren,O. R2	*10.80*

STRIP, Cold-Finished Spring Steel (Annealed)

	0.26-0.40C	0.41-0.60C	0.61-0.80C	0.81-1.05C	1.06-1.35C
Baltimore T6	9.50	10.70	12.90	15.90	18.85
Boston T6	9.50	10.70	12.90	15.90	18.85
Bristol,Conn. W1	...	10.70	12.90	16.10	19.30
Carnegie,Pa. S18	8.95	10.40	12.60	15.60	....
Cleveland A7	8.95	10.40	12.60	15.60	18.55
Dearborn,Mich. D3	9.05	10.50	12.70	....	....
Detroit D2	9.05	10.50	12.70	15.70	....
Dover,O. G6	8.95	10.40	12.60	15.60	18.55
Evanston,Ill. M22	8.95	10.40	12.60	15.60	....
Fostoria,O. S1	10.05	10.40	12.60	15.60	....
FranklinPark,Ill. T6	9.05	10.40	12.60	15.60	18.55
Harrison,N.J. C18	...	....	12.90	16.10	19.30
Indianapolis J5	9.10	10.55	12.60	15.60	18.55
LosAngeles C1	11.15	12.60	14.80	17.80	....
LosAngeles J5	11.15	12.60	14.80	....	....
NewBritain,Conn. S15	9.40	10.70	12.90	15.90	18.85
NewCastle,Pa. B4, E5	8.95	10.40	12.60	15.60	....
NewHaven,Conn. D2	9.40	10.70	12.90	15.90	....
NewKensington,Pa. A6	8.95	10.40	12.60	15.60	....
NewYork W3	...	10.70	12.90	16.10	19.30
Pawtucket,R.I. N8	9.50	10.70	12.90	15.90	18.85
Riverdale,Ill. A1	9.05	10.40	12.60	15.60	18.55
Rome,N.Y.(32) R6	8.95	10.40	12.60	15.60	18.55
Sharon,Pa. S3	8.95	10.40	12.60	15.60	18.55
Trenton,N.J. R5	...	10.70	12.90	16.10	19.30
Wallingford,Conn. W2	9.40	10.70	12.90	15.90	18.75
Warren,O. T5	8.95	10.40	12.60	15.60	18.55
Worcester,Mass. A7, T6	9.50	10.70	12.90	15.90	18.85
Youngstown J5	8.95	10.40	12.60	15.60	18.55

Spring Steel (Tempered)

	Up to 0.80C	0.81-1.05C	1.06-1.35C
Bristol,Conn. W1	18.10	21.95	26.30
Buffalo W12	18.10	....	....
Fostoria,O. S1	18.30	22.15	....
FranklinPark,Ill. T6	18.45	22.30	26.65
Harrison,N.J. C18	18.10	21.95	26.30
NewYork W3	18.10	21.95	26.30
Palmer,Mass. W12	18.10	....	....
Trenton,N.J. R5	18.10	21.95	26.30
Worcester,Mass. A7, T6	18.10	21.95	26.30
Youngstown J5	18.45	22.30	26.65

Weirton,W.Va. W6 10.85
Youngstown Y1 11.00

STRIP, Cold-Rolled Ingot Iron

Warren,O. R2	*8.175*

STRIP, C.R. Electrogalvanized

Cleveland A7	7.15*
Dover,O. G6	*7.425**
Evanston,Ill. M22	7.25*
Riverdale,Ill. A1	7.25*
Warren,O. B9, T5	7.15*
Worcester,Mass. A7	7.70*
Youngstown J5	7.15*

*Plus galvanizing extras.

STRIP, Galvanized (Continuous)

Sharon,Pa. S3	*7.50*

TIGHT COOPERAGE HOOP

Atlanta A11	5.65
Riverdale,Ill. A1	5.50
Sharon,Pa. S3	*5.525*
Youngstown U5	*5.525*

TIN MILL PRODUCTS

TIN PLATE, Electrolytic (Base Box)

	0.25 lb	0.50 lb	0.75 lb
Aliquippa,Pa. J5	$8.75	$9.00	$9.40
Fairfield,Ala. T2	8.85	9.10	9.50
Fairless,Pa. U5	8.85	9.10	9.50
Fontana,Calif. K1	9.50	9.75	10.15
Gary,Ind. U5	8.75	9.00	9.40
GraniteCity,Ill. G4	8.85	9.10	9.50
IndianaHarbor,Ind. I-2, Y1	8.75	9.00	9.40
Irvin,Pa. U5	8.75	9.00	9.40
Niles,O. R2	8.75	9.00	9.40
Pittsburg,Calif. C11	9.50	9.75	10.15
SparrowsPoint,Md. B2	8.85	9.10	9.50
Weirton,W.Va. W6	8.75	9.00	9.40
Yorkville,O. W10	8.75	9.00	9.40

ELECTROTIN (22-27 Gage; Dollars per 100 lb)

Aliquippa,Pa. J5	7.725	7.925	....
Niles,O. R2	7.725	7.925	8.125

TIN PLATE, American

	1.25 lb	1.50 lb
Aliquippa,Pa. J5	$10.05	$10.30
Fairfield,Ala. T2	10.15	10.40
Fairless,Pa. U5	10.15	10.40
Fontana,Calif. K1	10.80	11.05
Gary,Ind. U5	10.05	10.30
Ind.Harb. Y1	10.05	10.30
Pitts.,Calif. C11	10.80	11.05
Sp.Pt.,Md. B2	10.15	10.40
Weirton,W.Va. W6	10.05	10.30
Yorkville,O. W10	10.05	10.30

BLACK PLATE (Base Box)

Aliquippa,Pa. J5	$7.85
Fairfield,Ala. T2	7.95
Fairless,Pa. U5	7.95
Fontana,Calif. K1	8.60
Gary,Ind. U5	7.85
GraniteCity,Ill. G4	7.95
Ind.Harbor,Ind. I-2, Y1	7.85
Irvin,Pa. U5	7.85
Niles,O. R2	7.85
Pittsburg,Calif. C11	8.60
SparrowsPoint,Md. B2	7.95
Weirton,W.Va. W6	7.85
Yorkville,O. W10	7.85

HOLLOWARE ENAMELING Black Plate (29 Gage)

Aliquippa,Pa. J5	7.50
Gary,Ind. U5	7.50
GraniteCity,Ill. G4	7.60
Ind.Harbor,Ind. Y1	7.50
Irvin,Pa. U5	7.50
Yorkville,O. W10	7.50

MANUFACTURING TERNES (Special Coated, Base Box)

Gary,Ind. U5	$9.70
Irvin,Pa. U5	9.70

ROOFING SHORT TERNES (8 lb Coated, Base Box)

Gary,Ind. U5	$11.25

SILICON STEEL

COILS & CUT LENGTHS (22 Ga.)

Fully Processed (Semiprocessed ½c lower)	Field	Armature	Electric	Motor	Dynamo
BeechBottom,W.Va. W10	....	11.35	12.05	13.15	14.20
Brackenridge,Pa. A4	....	....	12.05	13.15	14.20
GraniteCity,Ill. G4	*9.975**	*11.30**	*12.00**	*13.15**	....
IndianaHarbor,Ind. I-2	*9.875†*	*11.20**	*11.90**	*13.05**	....
Mansfield,O. B6	9.625*	11.35	12.05	13.15	14.20
Vandergrift,Pa. U5	*9.875†*	*11.70*	*12.40*	*13.55*	*14.65*
Warren,O. R2	*9.875†*	*11.70*	*12.40*	*13.55*	*14.65*
Zanesville,O. A10		*11.70†*	*12.40*	*13.55*	*14.65*
					Stator
Vandergrift,Pa. U5					*8.10*

SHEETS (22 Ga., coils & cut lengths T-72 T-65 T-58 T-52)

Fully Processed (Semiprocessed ½c lower)	T-72	T-65	T-58	T-52
BeechBottom,W.Va. W10	*15.70*	*16.30*	*16.80*	*17.85*
Vandergrift,Pa. U5	*15.70*	*16.30*	*16.80*	*17.85*
Zanesville,O. A10	*15.70*	*16.30*	*16.80*	*17.85*

C.R. COILS & CUT LENGTHS (22 Ga.)	Grain Oriented T-100	T-90	T-80	T-73	T-66	T-72
Brackenridge,Pa. A4	....	17.60	19.20	19.70	20.20	15.25††
Butler,Pa. A10			*19.70*	*20.20*	*20.70*	
Vandergrift,Pa. U5	*17.10*	*18.10*	*19.70*	*20.20*	*20.70*	*15.70*
Warren,O. R2						*15.70‡*

*Semiprocessed. †Fully processed only. ‡Coils, annealed, semiprocessed ½c lower. ††Coils only.

WIRE

WIRE, Manufacturers Bright, Low Carbon

AlabamaCity,Ala. R2	*8.00*
Aliquippa,Pa. J5	*8.00*
Alton,Ill. L1	7.85
Atlanta A11	7.65
Bartonville,Ill. K4	7.75
Buffalo W12	7.65
Chicago W13	*8.00*
Cleveland A7, C20	*8.00*
Crawfordsville,Ind. MS	7.75
Donora,Pa. A7	*8.00*
Duluth A7	*8.00*
Fairfield, Ala. T2	*8.00*
Fostoria,O.(24) S1	7.75
Houston S5	*8.25*
Jacksonville,Fla. MS	8.00
Johnstown,Pa. B2	*8.00*
Joliet,Ill. A7	*8.00*
KansasCity,Mo. S5	*8.25*
Kokomo,Ind. C16	7.75
LosAngeles B3	8.60
Minnequa,Colo. C10	7.90
Monessen,Pa. P7, P16	*8.00*
N.Tonawanda,N.Y. B11	7.65
Palmer,Mass. W12	7.95
Pittsburg,Calif. C11	*8.95*
Portsmouth,O. P12	*8.00*
Rankin,Pa. A7	*8.00*
S.Chicago,Ill. R2	*8.00*
S.SanFrancisco C10	8.60
SparrowsPoint,Md. B2	*8.10*
Sterling,Ill.(1) N15	7.65
Sterling,Ill. N15	7.75
Struthers,O. Y1	*8.00*
Waukegan,Ill. A7	*8.00*
Worcester,Mass A7	*8.30*

WIRE, Gal'd., for ACSR

Bartonville,Ill. K4	12.65
Buffalo W12	12.65
Cleveland A7	12.65
Donora,Pa. A7	12.65
Duluth A7	12.65
Johnstown,Pa. B2	12.65
Minnequa,Colo. C10	12.775
Monessen,Pa. P7, P16	12.65
Muncie,Ind. I-7	12.85
NewHaven,Conn. A7	12.95
Palmer,Mass. W12	12.95
Pittsburg,Calif. C11	13.45
Portsmouth,O. P12	12.65
Roebling,N.J. R5	12.95
SparrowsPt.,Md. B2	12.75
Struthers,O. Y1	12.65
Trenton,N.J. A7	12.95
Waukegan,Ill. A7	12.65
Worcester,Mass. A7	12.95

WIRE, Upholstery Spring

Aliquippa,Pa. J5	*9.75*
Alton,Ill. L1	9.50
Buffalo W12	9.30
Cleveland A7	*9.75*
Donora,Pa. A7	*9.75*
Duluth A7	*9.75*
Johnstown,Pa. B2	*9.75*
KansasCity,Mo. S5	*10.00*
LosAngeles B3	10.25
Minnequa,Colo. C10	9.50
Monessen,Pa. P7, P16	*9.75*
NewHaven,Conn. A7	*10.05*
Palmer,Mass. W12	9.60
Pittsburg,Calif. C11	10.25
Portsmouth,O. P12	*9.75*
Roebling,N.J. R5	9.60
S.Chicago,Ill. R2	*9.75*
S.SanFrancisco C10	10.25
SparrowsPt.,Md. B2	*9.85*
Struthers,O. Y1	*9.75*
Trenton,N.J. A7	*10.05*
Waukegan,Ill. A7	*9.75*
Worcester,Mass. A7	*10.05*

WIRE, MB Spring, High-Carbon

Aliquippa,Pa. J5	*9.75*
Alton,Ill. L1	9.50
Bartonville,Ill. K4	9.40
Buffalo W12	9.30
Cleveland A7	9.30
Donora,Pa. A7	9.30
Duluth A7	9.30
Fostoria,O. S1	9.35
Johnstown,Pa. B2	*9.75*
KansasCity,Mo. S5	*10.00*
LosAngeles B3	10.25
Milbury,Mass.(12) N6	9.60
Minnequa,Colo. C10	9.50
Monessen,Pa. P7, P16	*9.75*
Muncie,Ind. I-7	9.50
Palmer,Mass.(12) W12	9.60
Pittsburg,Calif. C11	10.25
Portsmouth,O. P12	9.30
Roebling,N.J. R5	9.60
S.Chicago,Ill. R2	*9.75*
S.SanFrancisco C10	10.25
SparrowsPt.,Md. B2	*9.85*
Struthers,O. Y1	*9.75*
Trenton,N.J. A7	9.60
Waukegan,Ill. A7	9.30
Worcester A7, J4, T6	9.60

WIRE, Fine & Weaving(8" Coils)

Alton,Ill. L1	15.80
Bartonville,Ill. K4	15.70
Buffalo W12	15.60
Chicago W13	15.60
Cleveland A7	15.60
Crawfordsville,Ind. MS	15.70
Fostoria,O. S1	15.60
Houston S5	15.85
Jacksonville,Fla. MS	15.95
Johnstown,Pa. B2	15.60
KansasCity,Mo. S5	15.85
Kokomo,Ind. C16	15.60
Minnequa,Colo. C10	15.85
Monessen,Pa. P16	15.60
Muncie,Ind. I-7	15.80
Palmer,Mass. W12	15.90
S.SanFrancisco C10	16.45
Waukegan,Ill. A7	15.60
Worcester,Mass. A7, T6	15.90

ROPE WIRE (A)

Bartonville,Ill. K4	12.75
Buffalo W12	12.75
Fostoria,O. S1	12.75
Johnstown,Pa. B2	12.75
Monessen,Pa. P7	12.75
Muncie,Ind. I-7	12.95
Palmer,Mass. W12	13.05
Portsmouth,O. P12	12.75
Roebling,N.J. R5	13.05
St.Louis L8	12.75
SparrowsPt.,Md. B2	12.85
Struthers,O. Y1	12.75
Worcester,Mass. J4	13.05

(A) Plow and Mild Plow; add 0.25c for Improved Plow

WIRE, Tire Bead

Bartonville,Ill. K4	16.55
Monessen,Pa. P16	16.55
Roebling,N.J. R5	17.05

WIRE, Cold-Rolled Flat

Anderson,Ind. G6	11.65
Baltimore T6	11.95
Boston T6	11.95
Buffalo W12	11.65
Chicago W13	11.75
Cleveland A7	11.65
Crawfordsville,Ind. M8	11.65
Dover,O. G6	11.65
Fostoria,O. S1	11.65
FranklinPark,Ill. T6	11.75
Kokomo,Ind. C16	11.65
Massillon,O. R8	11.65
Milwaukee C23	11.85
Monessen,Pa. P7, P16	11.65
Palmer,Mass. W12	11.95
Pawtucket,R.I. N8	11.95
Philadelphia P24	11.95
Riverdale,Ill. A1	11.75
Rome,N.Y. R6	11.65
Sharon,Pa. S3	11.65
Trenton,N.J. R5	11.95
Warren,O. B9	11.65
Worcester,Mass. A7, T6	11.95

NAILS, Stock

	Colo.
AlabamaCity,Ala. R2	173
Aliquippa,Pa. J5	173
Atlanta A11	175
Bartonville,Ill. K4	175
Chicago W13	173
Cleveland A9	173
Crawfordsville,Ind. M8	175
Donora,Pa. A7	173
Duluth A7	173
Fairfield,Ala. T2	173
Houston S5	178
Jacksonville,Fla. M8	175
Johnstown,Pa. B2	173
Joliet,Ill. A7	173
KansasCity,Mo. S5	178
Kokomo,Ind. C16	175
Minnequa,Colo. C10	178
Monessen,Pa. P7	173
Pittsburg,Calif. C11	192
Rankin,Pa. A7	173
S.Chicago,Ill. R2	173
SparrowsPt.,Md. B2	175
Sterling,Ill.(7) N15	175
Worcester,Mass. A7	179

(To Wholesalers; per cwt)

Galveston,Tex. D7 ....$9.10

NAILS, Cut (100 lb keg)
To Dealers (33)

Conshohocken,Pa. A3	$9.80
Wheeling,W.Va. W10	9.80

POLISHED STAPLES

	Col.
AlabamaCity,Ala. R2	175
Aliquippa,Pa. J5	175
Atlanta A11	177
Bartonville,Ill. K4	177
Crawfordsville,Ind. M8	177
Donora,Pa. A7	175
Duluth A7	175
Fairfield,Ala. T2	175
Houston S5	180
Jacksonville,Fla. M8	177
Johnstown,Pa. B2	175
Joliet,Ill. A7	175
KansasCity,Mo. S5	180
Kokomo,Ind. C16	177
Minnequa,Colo. C10	180
Pittsburg,Calif. C11	194
Rankin,Pa. A7	175
S.Chicago,Ill. R2	175
SparrowsPt.,Md. B2	177
Sterling,Ill.(7) N15	175
Worcester,Mass. A7	181

TIE WIRE, Automatic Baler (14½ Ga.) (per 97 lb Net Box)
Coil No. 3150

AlabamaCity,Ala. R2	$10.26
Atlanta A11	10.36
Bartonville,Ill. K4	10.36
Buffalo W12	10.26
Chicago W13	10.26
Crawfordsville,Ind. M8	10.36
Donora,Pa. A7	10.26
Duluth A7	10.26
Fairfield,Ala. T2	10.26
Houston S5	10.51
Jacksonville,Fla. M8	10.36
Johnstown,Pa. B2	10.26
Joliet,Ill. A7	10.26
KansasCity,Mo. S5	10.51
Kokomo,Ind. C16	10.36
LosAngeles B3	11.05
Minnequa,Colo. C10	10.51
Pittsburg,Calif. C11	11.04
S.Chicago,Ill. R2	10.26
S.SanFrancisco C10	11.04
SparrowsPt.,Md. B2	10.36
Sterling,Ill.(37) N15	10.36

Coil No. 6500 Stand.

AlabamaCity,Ala. R2	$10.60
Atlanta A11	10.70
Bartonville,Ill. K4	10.70
Buffalo W12	10.60
Chicago W13	10.60
Crawfordsville,Ind. M8	10.70
Donora,Pa. A7	10.60
Duluth A7	10.60
Fairfield,Ala. T2	10.60
Houston S5	10.85
Jacksonville,Fla. M8	10.70
Johnstown,Pa. B2	10.60
Joliet,Ill. A7	10.60
KansasCity,Mo. S5	10.85
Kokomo,Ind. C16	10.70
LosAngeles B3	11.40
Minnequa,Colo. C10	10.85
Pittsburg,Calif. C11	11.40
S.Chicago,Ill. R2	10.60
S.SanFrancisco C10	11.40
SparrowsPt.,Md. B2	10.70
Sterling,Ill.(37) N15	10.70

Coil No. 6500 Interim

AlabamaCity,Ala. R2	$10.65
Atlanta A11	10.75
Bartonville,Ill. K4	10.75
Buffalo W12	10.65
Chicago W13	10.65
Crawfordsville,Ind. M8	10.75
Donora,Pa. A7	10.65
Duluth A7	10.65
Fairfield,Ala. T2	10.65
Houston S5	10.90
Jacksonville,Fla. M8	10.75
Johnstown,Pa. B2	10.65
Joliet,Ill. A7	10.65
KansasCity,Mo. S5	10.90
Kokomo,Ind. C16	10.75
LosAngeles B3	11.45
Minnequa,Colo. C10	10.90
Pittsburg,Calif. C11	11.45
S.Chicago,Ill. R2	10.65
S.SanFrancisco C10	11.45
SparrowsPt.,Md. B2	10.75
Sterling,Ill.(37) N15	10.75

BALE TIES, Single Loop

	Col.
AlabamaCity,Ala. R2	212
Atlanta A11	214
Bartonville,Ill. K4	214
Crawfordsville,Ind. M8	214
Donora,Pa. A7	212
Duluth A7	212
Fairfield,Ala. T2	212
Houston S5	217
Jacksonville,Fla. M8	214
Joliet,Ill. A7	212
KansasCity,Mo. S5	217
Kokomo,Ind. C16	214
Minnequa,Colo. C10	217
Pittsburg,Calif. C11	236
S.SanFrancisco C10	236
SparrowsPt.,Md. B2	214
Sterling,Ill.(7) N15	214

FENCE POSTS

Birmingham C15	172
ChicagoHts.,Ill. C2, I-2	172
Duluth A7	172
Franklin,Pa. F5	172
Huntington,W.Va. C15	172
Johnstown,Pa. B2	172
Marion,O. P11	172
Minnequa,Colo. C10	177
Sterling,Ill.(1) N15	172
Tonawanda,N.Y. B12	174

WIRE, Barbed

	Col.
AlabamaCity,Ala. R2	193**
Aliquippa,Pa. J5	190§
Atlanta A11	198*
Bartonville,Ill. K4	198
Crawfordsville,Ind. M8	198
Donora,Pa. A7	193†
Duluth A7	193†
Fairfield,Ala. T2	193†
Houston S5	198**
Jacksonville,Fla. M8	198
Johnstown,Pa. B2	196§
Joliet,Ill. A7	193†
KansasCity,Mo. S5	198**
Kokomo,Ind. C16	195†
Minnequa,Colo. C10	198**
Monessen,Pa. P7	196§
Pittsburg,Calif. C11	213†
Rankin,Pa. A7	193†
S.Chicago,Ill. R2	193**
S.SanFrancisco C10	213*
SparrowsPoint,Md. B2	198§
Sterling,Ill.(7) N15	198††

WOVEN FENCE, 9-15 Ga.

	Col.
Ala.City,Ala. R2	187**
Aliq'ppa,Pa.9-14½ga.J5	190§
Atlanta A11	192*
Bartonville,Ill. K4	192
Crawfordsville,Ind. M8	192
Donora,Pa. A7	187†
Duluth A7	187†
Fairfield,Ala. T2	187†
Houston S5	192**
Jacksonville,Fla. M8	192
Johnstown,Pa.(43) B2	190§
Joliet,Ill. A7	187†
KansasCity,Mo. S5	192**
Kokomo,Ind. C16	189†
Minnequa,Colo. C10	192**
Pittsburg,Calif. C11	210†
Rankin,Pa. A7	187†
S.Chicago,Ill. R2	187**
Sterling,Ill.(7) N15	192††

WIRE (16 gage)	An'ld Stone	Galv. Stone
Ala.City,Ala.R2	17.15	18.70**
Aliq'ppa,Pa. J5	17.15	18.95
Bartonville K4	17.25	19.05
Cleveland A7	17.15	....
Craw'dsville M8	17.25	19.05
Fostoria,O. S1	17.65	19.20†
Houston S5	17.40	18.95**
Jacksonville M8	17.25	19.05
Johnstown B2	17.15	18.95§
Kan.City,Mo. S5	17.40	....
Kokomo C16	17.25	18.80†
Minnequa C10	17.40	18.95**
P'im'r,Mass.W12	17.45	19.00†
Pitts.,Calif. C11	17.50	19.05†
SparrowsPt. B2	17.25	19.05§
Sterling(37)N15	17.25	19.05††
Waukegan A7	17.15	18.70†
Worcester A7	17.45	....

WIRE, Merchant Quality

(6 to 8 gage)	An'ld	Galv.
Ala.City,Ala. R2	18.65	9.20**
Aliquippa J5	18.65	9.325§
Atlanta(48) A11	18.75	9.425*
Bartonville(48) K4	18.75	9.425
Buffalo W12	18.65	9.20†
Cleveland A7	18.65	....
Crawfordsville M8	18.75	9.425
Donora,Pa. A7	18.65	9.20†
Duluth A7	18.65	9.20†
Fairfield T2	18.65	9.20†
Houston(48) S5	18.90	9.45**
Jacks'ville.Fla. M8	18.75	9.425
Johnstown B2(48)	18.65	9.325§
Joliet,Ill. A7	18.65	9.20†
Kans.City(48) S5	18.90	9.45**
Kokomo C16	18.75	9.30†
LosAngeles B3	19.60	10.275§
Minnequa C10	18.90	9.45**
Monessen P7(48)	18.65	9.325§
Palmer,Mass. W12	18.95	9.50†
Pitts.Calif. C11	19.60	10.15†
Rankin,Pa. A7	18.65	9.20†
S.Chicago R2	18.65	9.20**
S.SanFran. C10	19.60	10.15**
Spar'wsPt.B2(48)	18.75	9.425§
Sterling(48) N15	18.90	9.575††
Sterling(1) (48)	18.80	9.475††
Struthers,O. Y1	18.65	9.30‡
Worcester,Mass.A7	18.95	9.50†

Based on zinc price of: *13.50. †5c. §10c. ‡Less than 10c. ††10.50c. **Subject to zinc equalization extras.

FASTENERS

(Base discounts, full container quantity, per cent off list, f.o.b. mill)

BOLTS

Carriage, Machine Bolts
Full Size Body (cut thread)

½ in. and smaller:	
6 in. and shorter	49.0
Longer than 6 in.	39.0
⅝ in. thru 1 in.:	
6 in. and shorter	39.0
Longer than 6 in.	35.0
1¼ in. and larger:	
All lengths	35.0

Undersized Body (rolled thread)

½ in. and smaller:	
6 in. and shorter	49.0

Carriage, Machine, Lag Bolts
Hot Galvanized:

½ in. and smaller:	
6 in. and shorter	29.0
Longer than 6 in.	15.0
⅝ in. and larger:	
All lengths	12.0

Lag Bolts (all diam.)

6 in. and shorter	49.0
Longer than 6 in.	39.0

Plow and Tap Bolts

½ in. and smaller by 6 in. and shorter	49.0
Larger than ½ in. or longer than 6 in.	39.0

Blank Bolts 39.0
Step, Elevator, Tire Bolts 49.0

Stove Bolts, Slotted:

⅛ to ¼ in. incl., 3 in. and shorter	55.0
⅝ to ½ in., inclusive	55.0

NUTS

Reg. & Heavy Square Nuts:
All sizes 55.5

Square Nuts, Reg. &
Heavy, Hot Galvanized:
All sizes 41.0

Hex Nuts, Reg. &
Heavy, Hot Pressed:

¾ in. and smaller	60.5
⅞ in. to 1 in., incl.	55.5
1⅛ in. to 1½ in., incl.	58.5
1⅝ in. and larger	53.5

Hex Nuts, Reg. &
Heavy, Cold Punched:

¾ in. and smaller	60.5
⅞ in. to 1½ in., incl.	55.5
1⅝ in. and larger	53.5

Hex Nuts, All Types, Hot Galvanized:

¾ in. and smaller	46.5
⅞ in. to 1 in., incl.	41.5
1⅛ in. to 1½ in., incl.	46.5

Hex Nuts, Semifinished, Heavy (Incl. Slotted):

¾ in. and smaller	60.5
⅞ in. to 1½ in., incl.	55.5
1⅝ in. and larger	53.5

Hex Nuts, Finished (Incl. Slotted and Castellated):

1 in. and smaller	63.0
1⅛ in. to 1½ in., incl.	59.0
1⅝ in. and larger	53.5

Semifinished Hex Nuts, Reg. (Incl. Slotted):

⅝ in. and smaller	60.5
¾ in. to 1 in., incl.	63.0
1⅛ to 1½ in., incl.	59.0
1⅝ in. and larger	53.5

CAP AND SETSCREWS
(Base discounts, packages, per cent off list, f.o.b. mill)

Hex Head Capscrews, Coarse or Fine Thread, Bright:

6 in. and shorter:	
⅝ in. and smaller	40.0
¾, ⅞, and 1 in. diam.	22.0
Longer than 6 in.:	
⅝ in. and smaller	8.0
¾, ⅞, and 1 in. diam.	+ 6.0

High Carbon, Heat Treated:

6 in. and shorter:	
⅝ in. and smaller	26.0
¾, ⅞, and 1 in. diam.	3.0
Longer than 6 in.:	
⅝ in. and smaller	+ 13.0
¾, ⅞, and 1 in. diam.	+ 32.0

Flat Head Capscrews:
¾ in. and smaller + 76.0

Setscrews, Square Head, Cup Point, Coarse Thread:

Through 1 in. diam.:	
6 in. and shorter	Net
Longer than 6 in.	+ 23

RIVETS

F.o.b. Cleveland and/or freight equalized with Pittsburgh, f.o.b. Chicago and/or freight equalized with Birmingham except where equalization is too great.

Structural ½ in., larger 12.25
7/8 in. under: List less 19%

PRESTRESSED STRAND

(High strength, stress relieved; 7 wire uncoated. Net prices per 1000 ft, 40,000 lb and over)

	Strand Diameter, Inches				
	1/4	5/16	3/8	7/16	1/2
Alton,Ill. L1	$32.15	$48.20	$61.55	$81.10	$105.65
Buffalo W12	32.15	48.20	61.55	31.10	105.65
Cleveland A7	32.15	48.20	61.55	81.10	....
KansasCity,Mo. U3	32.15	48.20	61.55	81.10	105.65
Monessen,Pa. P6	32.15	48.20	61.55	81.10	105.65
NewHaven,Conn. A7	32.15	48.20	61.55	81.10	105.65
Pittsburg,Calif. C11	....	48.20	61.55	81.10	....
Pueblo,Colo. W12	32.15	48.20	61.55	81.10	105.65
Roebling,N.J. R5	32.15	48.20	61.55	81.10	105.65
St.Louis L8	32.15	48.20	61.55	81.10	105.65
Waukegan,Ill. A7	32.15	48.20	61.55	81.10	105.65

RAILWAY MATERIALS

	Standard No. 1	Standard No. 2	Tee Rails All 60-lb	Tee Rails Under
Rails				
Bessemer,Pa. U5	5.525	5.425	....	6.50
Ensley,Ala. T2	5.525	5.425	....	6.50
Fairfield,Ala. T2	....	....	....	6.50
Gary,Ind. U5	5.525	5.425	....	....
Huntington,W.Va. C15	....	....	....	6.50
IndianaHarbor,Ind. I-2	5.525	5.425	5.475	....
Johnstown,Pa. B2	....	....	(16)6.50	....
Lackawanna,N.Y. B2	5.525	5.425	....	6.50
Minnequa,Colo. C10	5.525	5.425	....	7.00
Steelton,Pa. B2	5.525	5.425	....	....
Williamsport,Pa. S19	....	....	....	6.50

TIE PLATES

Fairfield,Ala. T2	6.60
Gary,Ind. U5	6.60
Ind.Harbor,Ind. I-2	6.60
Lackawanna,N.Y. B2	6.60
Minnequa,Colo. C10	6.60
Seattle B3	6.75
Steelton,Pa. B2	6.60
Torrance,Calif. C11	6.75

JOINT BARS

Bessemer,Pa. U5	6.975
Fairfield,Ala. T2	6.975
Ind.Harbor,Ind. I-2	6.975
Joliet,Ill. U5	6.975
Lackawanna,N.Y. B2	6.975
Minnequa,Colo. C10	6.975
Steelton,Pa. B2	6.975

AXLES

Ind.Harbor,Ind. S13	*9.125*
Johnstown,Pa. B2	8.775

TRACK BOLTS, Untreated

Cleveland R2	14.75
KansasCity,Mo. S5	14.75
Lebanon,Pa. B2	14.75
Minnequa,Colo. C10	14.75
Pittsburgh P14	14.75
Seattle B3	15.25

SCREW SPIKES

Lebanon,Pa. B2	14.50

STANDARD TRACK SPIKES

Fairfield,Ala. T2	9.75
Ind.Harbor,Ind. I-2, Y1	*10.10*
KansasCity,Mo. S5	*10.10*
Lebanon,Pa. B2	9.75
Minnequa,Colo. C10	9.75
Pittsburgh J5	*10.10*
Seattle B3	10.25
S.Chicago,Ill. R2	*10.10*
Struthers,O. Y1	*10.10*
Youngstown R2	*10.10*

Footnotes

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant.
(4) Reinforcing.
(5) 1¼ to under 1 7/16 in.; 1 7/16 to under 1 15/16 in., 6.70c; 1 15/16 to 8 in., inclusive, 7.05c.
(6) Chicago or Birm. Base.
(7) Chicago base 2 cols. lower.
(8) 16 Ga. and heavier.
(9) Merchant quality; add 0.35c for special quality.
(10) Pittsburgh base.
(11) Cleveland & Pitts. base.
(12) Worcester, Mass. base.
(13) Add 0.25c for 17 Ga. & heavier.
(14) Gage .0143 to 0.249 in.; for gage 0.142 and lighter, 5.80c.
(15) ⅜" and thinner.
(16) 40 lb and under.
(17) Flats only; 0.25 in. & heavier.
(18) To dealers.
(19) Chicago & Pitts. base.
(21) New Haven, Conn. base.
(22) Deld. San Francisco Bay area.
(23) Special quality.
(24) Deduct 0.15c, finer than 15 Ga.
(25) Bar mill bands.
(27) Bar mill sizes.
(28) Bonderized.
(29) Youngstown base.
(30) Sheared; for universal mill add 0.45c.
(31) Widths over ⅝ in.; 7.60c, for widths ⅝ in. and under by 0.125 in. and thinner.
(32) Buffalo base.
(33) To jobbers, deduct 20c.
(34) 9.60c for cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) Chicago base, 10 points lower.
(38) 14 Ga. & lighter; 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 0.035" and heavier, 0.25c higher.
(41) 9.10c for cut lengths.
(42) Mill lengths, f.o.b. mill; deld. in mill zone or within switching limits, 5.685c.
(43) 9-14½ Ga.
(44) To fabricators.
(48) 6-7 Ga.
(49) 3½ in. and smaller rounds; 9.55c, over 3½ in. and other shapes.

SEAMLESS STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Size—Inches	2		2½		3		3½		4		5		6	
List Per Ft	37c		58.5c		76.5c		92c		$1.09		$1.48		$1.92	
Pounds Per Ft	3.68		5.82		7.62		9.20		10.89		14.81		19.18	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	+12.25	+27.25	+5.75	+22.5	+3.25	+20	+1.75	+18.5	+1.75	+18.5	+2	+18.75	0.5	+16.25
Ambridge, Pa. N2	+12.25		+5.75		+3.25		+1.75		+1.75		+2		0.5	
Lorain, O. N3	+12.25	+27.25	+5.75	+22.5	+3.25	+20	+1.75	+18.5	+1.75	+18.5	+2	+18.75	0.5	+16.25
Youngstown Y1	+12.25	+27.25	+5.75	+22.5	+3.25	+20	+1.75	+18.5	+1.75	+18.5	+2	+18.75	0.5	+16.25

ELECTRIC STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Youngstown R2			+5.75	+22.5	+3.25	+20	+1.75	+18.5	+1.75	+18.5	+2	+18.75	0.5	+16.25

BUTTWELD STANDARD PIPE, Threaded and Coupled

Carload discounts from list, %

Size—Inches	⅛		¼		⅜		½		¾		1		1¼	
List Per Ft	5.5c		6c		6c		8.5c		11.5c		17c		23c	
Pounds Per Ft	0.24		0.42		0.57		0.85		1.13		1.68		2.28	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	....	....	....	....	....	....	*2.25*	*+13*	*5.25*	*+9*	*8.75*	*+4.5*	*11.25*	*+3.75*
Alton, Ill. L1	....	....	....	....	....	....	3.25	+12	6.25	+8	9.75	+3.5	12.25	+2.75
Benwood, W. Va. W10	*1.5*	*+25*	*+10.5*	*+34*	*+21*	*+42.5*	*2.25*	*+13*	*5.25*	*+9*	*8.75*	*+4.5*	*11.25*	*+3.75*
Butler, Pa. F6	5.5	+21	+6.5	+30	+17	+38.5	....	....	....	....	....	....	....	....
Etna, Pa. N2	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Fairless, Pa. N3	....	....	....	....	....	....	*0.25*	*+15*	*3.25*	*+11*	*6.75*	*+6.5*	*9.25*	*+5.75*
Fontana, Calif. K1	....	....	....	....	....	....	+8.25	+23.5	+5.25	+19.5	+1.75	+15	0.75	+14.25
Indiana Harbor, Ind. Y1	....	....	....	....	....	....	*1.25*	*+14*	*4.25*	*+10*	*7.75*	*+3.5*	*10.25*	*+6.25*
Lorain, O. N3	....	....	....	....	....	....	*3.25*	*+13*	*5.25*	*+9*	*8.75*	*+4.5*	*11.25*	*+3.75*
Sharon, Pa. S4	5.5	+21	+6.5	+30	+17	+38.5	....	....	....	....	....	....	....	....
Sharon, Pa. M6	....	....	....	....	....	....	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Sparrows Pt., Md. B2	*0.5*	*+26*	*+11.5*	*+35*	*+22*	*+43.5*	*0.25*	*+15*	*3.25*	*+11*	*6.75*	*+6.5*	*9.25*	*+5.75*
Wheatland, Pa. W9	5.5	+21	+6	+30	+17	+38.5	5.25	+10	8.25	+6	11.75	+1.5	14.25	+0.75
Youngstown R2, Y1	....	....	....	....	....	....	*3.75*	*+13*	*5.25*	*+9*	*8.75*	*+4.5*	*11.25*	*+3.75*

Size—Inches	1½		2		2½		3		3½		4	
List Per Ft	27.5c		37c		58.5c		76.5c		92c		$1.09	
Pounds Per Ft	2.73		3.68		5.82		7.62		9.20		10.89	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Aliquippa, Pa. J5	*11.75*	*+2.75*	*12.25*	*+2.25*	*13.75*	*+2.5*	*13.75*	*+2.5*	....	....	....	....
Alton, Ill. L1	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	....	....	....	....
Benwood, W. Va. W10	*11.75*	*+2.75*	*12.25*	*+2.25*	*13.75*	*+2.5*	*13.75*	*+2.5*	*3.25*	*+13.5*	*3.25*	*+13.5*
Etna, Pa. N2	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Fairless, Pa. N3	*9.75*	*+4.75*	*10.25*	*+4.25*	*11.75*	*+4.5*	*11.75*	*+4.5*	*1.25*	*+15.5*	*1.25*	*+15.5*
Fontana, Calif. K1	1.25	+13.25	1.75	+12.75	3.25	+13	3.25	+13	+7.25	+24	+7.25	+24
Indiana Harbor, Ind. Y1	*10.75*	*+3.75*	*11.25*	*+3.25*	*12.75*	*+3.5*	*12.25*	*+3.5*	*2.25*	*+14.5*	*2.25*	*+14.5*
Lorain, O. N3	*11.75*	*+2.75*	*12.25*	*+2.25*	*13.75*	*+2.5*	*13.75*	*+2.5*	....	....	....	....
Sharon, Pa. M6	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Sparrows Pt., Md. B2	*9.75*	*+4.75*	*10.25*	*+4.25*	*11.75*	*+4.5*	*11.75*	*+4.5*	*1.25*	*+15.5*	*1.25*	*+15.5*
Wheatland, Pa. W9	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Youngstown R2, Y1	*11.75*	*+2.75*	*12.25*	*+2.25*	*13.75*	*+2.5*	*13.75*	*+2.5*	*3.25*	*+13.5*	*3.25*	*+13.5*

*Galvanized pipe discounts based on current price of zinc (10.00c, East St. Louis).

Stainless Steel

Representative prices, cents per pound; subject to current lists of extras

AISI Type	Rerolling—Ingot	Rerolling—Slabs	Forging Billets	H.R. Strip	H.R. Rods; C.F. Wire	Bars; Structural Shapes	Plates	Sheets	C.R. Strip; Flat Wire
201	22.00	27.00	...	36.00	40.00	42.00	44.25	48.50	45.00
202	23.75	30.25	36.50	39.00	40.75	43.00	45.00	49.25	49.25
301	23.25	28.00	37.25	37.25	42.00	44.25	46.25	51.25	47.50
302	25.25	31.50	38.00	40.50	42.75	45.00	47.25	52.00	52.00
302B	25.50	32.75	40.75	45.75	45.00	47.25	49.50	57.00	57.00
303	....	32.00	41.00	46.00	45.50	48.00	50.00	56.75	56.75
304	27.00	33.25	40.50	44.25	45.25	47.75	50.75	55.00	55.00
304L	....	....	48.25	51.50	53.00	55.50	58.50	63.25	62.75
305	28.50	36.75	42.50	47.50	45.25	47.75	51.25	58.75	58.75
308	30.75	38.25	47.25	50.25	52.75	55.75	60.25	63.00	63.00
309	39.75	49.50	57.75	64.50	63.75	67.00	71.00	80.50	80.50
310	49.75	61.50	78.00	84.25	86.50	91.00	92.75	96.75	96.75
314	....	....	77.50	....	86.50	91.00	92.75	99.00	104.25
316	39.75	49.50	62.25	69.25	69.25	73.00	76.75	80.75	80.75
316L	....	55.50	70.00	76.50	77.00	80.75	84.50	89.25	88.50
317	48.00	60.00	76.75	88.25	86.25	90.75	93.50	101.00	101.00
321	32.25	40.00	47.00	53.50	52.50	55.50	59.75	65.50	65.50
330	....	....	106.75	....	95.25	106.75	105.50	108.00	149.25
18-8 CbTa	37.00	46.50	55.75	63.50	61.50	64.75	69.75	79.25	79.25
403	....	....	28.25	....	32.00	33.75	35.00	40.25	40.25
405	19.50	25.50	29.75	36.00	33.50	35.25	37.50	46.75	46.75
410	16.75	21.50	28.25	31.00	32.00	33.75	35.00	40.25	40.25
416	....	....	28.75	....	32.50	34.25	36.00	48.25	48.25
420	26.00	33.50	34.25	41.75	39.25	41.25	45.25	52.00	62.00
430	17.00	21.75	28.75	32.00	32.50	34.25	36.00	40.75	40.75
430F	....	....	29.50	....	33.00	34.75	36.75	51.75	42.00
431	....	28.75	37.75	....	42.00	44.25	46.00	56.00	56.00
446	....	....	39.25	59.00	44.25	46.50	47.75	70.00	70.00

Stainless Steel Producers Are: Allegheny Ludlum Steel Corp.; American Steel & Wire Div., U. S. Steel Corp.; Anchor Drawn Steel Co., division of Vanadium-Alloys Steel Co.; Armco Steel Corp.; Babcock & Wilcox Co.; Bethlehem Steel Co.; J. Bishop & Co.; A. M. Byers Co.; G. O. Carlson Inc.; Carpenter Steel Co.; Carpenter Steel Co. of New England; Charter Wire Products; Crucible Steel Co. of America; Damascus Tube Co.; Dearborn Div., Sharon Steel Corp.; Wilbur B. Driver Co.; Driver-Harris Co.; Eastern Stainless Steel Corp.; Firth Sterling Inc.; Fort Wayne Metals Inc.; Green River Steel Corp., subsidiary of Jessop Steel Co.; Indiana Steel & Wire Co.; Ingersoll Steel Div., Borg-Warner Corp.; Ellwood Ivins Steel Tube Works Inc.; Jessop Steel Co.; Johnson Steel & Wire Co. Inc.; Stainless Steel Div., Jones & Laughlin Steel Corp.; Joslyn Stainless Steels, division of Joslyn Mfg. & Supply Co.; Latrobe Steel Co.; Lukens Steel Co.; Maryland Fine & Specialty Wire Co. Inc.; McLouth Steel Corp.; Metal Forming Corp.; Midvale-Heppenstall Co.; National Standard Co.; National Tube Div., U. S. Steel Corp.; Pacific Tube Co.; Page Steel & Wire Div., American Chain & Cable Co. Inc.; Pittsburgh Rolling Mills Inc.; Republic Steel Corp.; Riverside-Alloy Metal Div., H. K. Porter Company Inc.; Rodney Metals Inc.; Sawhill Tubular Products Inc.; Sharon Steel Corp.; Simonds Saw & Steel Co.; Specialty Wire Co. Inc.; Standard Tube Co.; Superior Steel Div., Copperweld Steel Co.; Superior Tube Co.; Swepco Tube Corp.; Techalloy Co. Inc.; Timken Roller Bearing Co.; Trent Tube Co., subsidiary of Crucible Steel Co. of America; Tube Methods Inc.; Ulbrich Stainless Steels Inc.; U. S. Steel Corp.; Universal-Cyclops Steel Corp.; Vanadium-Alloys Steel Co.; Wall Tube & Metal Products Co.; Wallingford Steel Co., subsidiary of Allegheny Ludlum Steel Corp.; Washington Steel Corp.

Clad Steel

	Plates—Carbon Base 5%	10%	15%	20%	Sheets—Carbon Base 20%
Stainless					
302	....	....	....	....	37.50
304	34.70	37.95	42.25	46.70	39.75
304L	36.90	40.55	45.10	49.85	....
316	40.35	44.50	49.50	54.50	58.25
316L	45.05	49.35	54.70	60.10	....
316 Cb	47.30	53.80	61.45	69.10	....
321	36.60	40.05	44.60	49.30	47.25
347	38.25	42.40	47.55	52.80	57.00
405	28.60	29.85	33.35	36.85	....
410	28.15	29.55	33.10	36.70	....
430	28.30	29.80	33.55	37.25	....
Inconel	48.00	59.55	70.15	80.85	....
Nickel	41.65	51.95	62.30	72.70	....
Nickel, Low Carbon	41.95	52.60	63.30	74.15	....
Monel	43.35	53.55	63.80	74.05	....
Copper*	....	....	....	....	46.00

	Strip, Carbon Base—Cold Rolled—10%	Both Sides
Copper*	33.10	38.75

*Deoxidized. Production points: Stainless-clad sheets, New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7, New Castle, Ind. I-4, and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatesville L7; copper-clad strip, Carnegie, Pa. S1s.

Tool Steel

Grade	$ per lb	Grade	$ per lb
Regular Carbon	*0.330*	*Cr-Hot Work*	*0.505*
Extra Carbon	*0.385*	*W-Cr Hot Work*	*0.530*
Special Carbon	*0.505*	*V-Cr Hot Work*	*0.550*
Oil Hardening	*0.505*	*Hi-Carbon-Cr*	*0.955*

Grade by Analysis (%)

W	Cr	V	Co	Mo	$ per lb
20.25	*4.25*	*1.6*	*12.25*	....	*4.330*
18.25	*4.25*	*1*	*4.75*	....	*2.545*
18	*4*	*2*	*9*	....	*2.915*
18	*4*	*2*	....	....	*2.005*
18	*4*	*1*	....	....	*1.840*
9	*3.5*	....	....	....	*1.425*
13.5	*4*	*3*	....	....	*2.105*
13.75	*3.75*	*2*	*5*	....	*2.485*
6.4	*4.5*	*1.9*	....	*5*	*1.345*
6	*4*	*3*	....	*6*	*1.590*
1.5	*4*	*1*	....	*8.5*	*1.200*

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, F2, J3, L3, M14, S8, U4, V2, and V3.

Pig Iron

F.o.b. furnace prices in dollars per gross ton, as reported to STEEL. Minimum delivered prices are approximate.

	Basic	No. 2 Foundry	Malle-able	Besse-mer
Birmingham District				
Birmingham R2	62.00	62.50‡	....	....
Birmingham U6	....	62.50‡	66.50	....
Woodward,Ala. W15	62.00**	62.50‡	66.50	....
Cincinnati, deld.	....	70.20	....	....
Buffalo District				
Buffalo H1, R2	66.00	66.50	67.00	67.50
N.Tonawanda,N.Y. T9	....	66.50	67.00	67.50
Tonawanda,N.Y. W12	66.00	66.50	67.00	67.50
Boston, deld.	77.29	77.79	78.29	....
Rochester,N.Y., deld.	69.02	69.52	70.02	....
Syracuse,N.Y., deld.	70.12	70.62	71.12	....
Chicago District				
Chicago I-3	66.00	66.50	66.50	67.00
S.Chicago,Ill. W14	66.00	66.50	66.50	67.00
S.Chicago,Ill W14	66.00	....	66.50	67.00
Milwaukee, deld.	69.02	69.52	69.52	70.02
Muskegon,Mich., deld.	....	74.52	74.52	....
Cleveland District				
Cleveland R2, A7	66.00	66.50	66.50	67.00
Akron,Ohio, deld.	69.52	70.02	70.02	70.52
Mid-Atlantic District				
Birdsboro,Pa. B10	68.00	68.50	69.00	69.50
Chester,Pa. P4	68.00	68.50	69.00	....
Swedeland,Pa. A3	68.00	68.50	69.00	69.50
New York, deld.	....	75.50	76.00	....
Newark,N.J., deld.	72.69	73.19	73.69	74.19
Philadelphia, deld.	70.41	70.91	71.41	71.99
Troy,N.Y. R2	68.00	68.50	69.00	69.50
Pittsburgh District				
NevilleIsland,Pa. P6	66.00	66.50	66.50	67.00
Pittsburgh (N&S sides), Aliquippa, deld.	....	67.95	67.95	68.48
McKeesRocks,Pa., deld.	....	67.60	67.60	68.13
Lawrenceville,Homestead, Wilmerding,Monaca,Pa., deld.	....	68.26	68.26	68.79
Verona,Trafford,Pa., deld.	68.29	68.82	68.82	69.35
Brackenridge,Pa., deld.	68.60	69.10	69.10	69.63
Midland,Pa. C18	66.00	....	....	....
Youngstown District				
Hubbard,Ohio Y1	....	....	66.50	....
Sharpsville,Pa. S6	66.00	....	66.50	67.00
Youngstown Y1	....	....	66.50	67.00
Mansfield,Ohio, deld.	71.30	....	71.80	72.30
Duluth I-3	66.00	66.50	66.50	67.00
Erie,Pa. I-3	66.00	66.50	66.50	67.00
Everett,Mass. E1	67.50	68.00	68.50	....
Fontana,Calif. K1	75.00	75.50	....	....
Geneva,Utah C11	66.00	66.50	....	....
GraniteCity,Ill. G4	67.90	68.40	68.90	....
Ironton,Utah C11	66.00	66.50	....	....
Minnequa,Colo. C10	68.00	68.50	69.00	....
Rockwood,Tenn. T3	....	62.50‡	66.50	....
Toledo,Ohio I-3	66.00	66.50	66.50	67.00
Cincinnati, deld.	72.94	73.44	....	....

**Phos. 0.70-0.90%; Phos. 0.30-0.69%, $63.
‡Phos. 0.70-0.90%; Phos. 0.30-0.69%, $63.50.

PIG IRON DIFFERENTIALS

Silicon: Add 75 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos. iron on which base is 1.75-2.00%.

Manganese: Add 50 cents per ton for each 0.25% manganese over 1% or portion thereof.

BLAST FURNACE SILVERY PIG IRON, Gross Ton

(Base 6.00-6.50% silicon; add $1 for each 0.50% silicon or portion thereof over the base grade within a range of 6.50 to 11.50%; starting with silicon over 11.50% and $1.50 per ton for each 0.50% silicon or portion thereof up to 14%; add $1 for each 0.50% Mn over 1%)

Jackson,Ohio I-3, J1	$78.00
Buffalo H1	79.25

ELECTRIC FURNACE SILVERY IRON, Gross Ton

(Base 14.01-14.50% silicon; add $1 for each 0.5% Si to 18%; $1.25 for each 0.50% Mn over 1%; $2 per gross ton premium for 0.045% max P)

CalvertCity,Ky. P15	$99.00
NiagaraFalls, N.Y. P15	99.00
Keokuk,Iowa Open-hearth & Fdry, $9 freight allowed K2	103.50
Keokuk,Iowa O.H. & Fdry, 12½ lb piglets, 16% Si, max fr'gt allowed up to $9, K2	106.50

LOW PHOSPHORUS PIG IRON, Gross Ton

Lyles,Tenn. T3 (Phos. 0.035% max)	$78.50
Rockwood,Tenn. T3 (Phos. 0.035% max)	78.50
Troy,N.Y. R2 (Phos. 0.035% max)	74.00
Philadelphia, deld.	82.67
Cleveland A7 (Intermediate) (Phos. 0.036-0.075% max)	71.00
Duluth I-3 (Intermediate) (Phos. 0.036-0.075% max)	71.00
Erie,Pa. I-3 (Intermediate) (Phos. 0.036-0.075% max)	71.00
NevilleIsland,Pa. P6 (Intermediate) (Phos. 0.036-0.075% max)	71.00

Steel Service Center Products

Representative prices, per pound, subject to extras, f.o.b. warehouse. City delivery charges are 15 cents per 100 lb except: Denver, Moline, Norfolk, Richmond, Washington, 20 cents; Baltimore, Boston, Los Angeles, New York, Philadelphia, Portland, Spokane, San Francisco, 10 cents; Atlanta, Birmingham, Chattanooga, Houston, Seattle, no charge.

	SHEETS				STRIP	BARS			Standard Structural Shapes	PLATES	
	Hot-Rolled	Cold-Rolled	Gal. 10 Ga.†	Stainless Type 302	Hot-Rolled*	H.R. Rounds	C.F. Rds.‡	H.R. Alloy 4140††[5]		Carbon	Floor
Atlanta	8.59§	9.86§	....	....	8.64	9.01	10.68	....	9.05	8.97	10.90
Baltimore	8.00	8.90	9.68	....	8.70	8.65	12.33#	15.18	8.50	8.65	9.75
Birmingham	8.18	9.45	10.46	....	8.23	8.60	10.57	....	8.64	8.56	10.70
Boston	9.38	10.44	11.45	53.50	9.42	9.73	12.90#	15.28	9.63	9.72	11.20
Buffalo	8.25	9.00	11.07	55.98	8.50	8.80	11.00#	15.00	8.90	8.90	10.45
Chattanooga	8.35	9.69	9.65	....	8.40	8.77	10.46	....	8.88	8.80	10.66
Chicago	8.20	9.45	10.10	53.00	8.23	8.60	8.80	14.65	8.64	8.56	9.88
Cincinnati	8.34	9.48	10.10	52.43	8.54	8.92	11.06	14.86	9.18	8.93	10.21
Cleveland	8.18	9.45	10.20	52.33	8.33	8.69	10.80#	14.74	9.01	8.79	10.11
Dallas	7.50	8.80	....	....	7.65	7.60	11.01	....	7.65	8.10	9.35
Denver	9.40	11.84	12.94	....	9.43	9.80	11.19	....	9.84	9.76	11.08
Detroit	8.43	9.70	10.45	56.50	8.58	8.90	9.15	14.91	9.18	8.91	10.13
Erie, Pa.	8.20	9.45	9.95[10]	....	8.50	8.75	9.05[10]	....	9.00	8.85	10.10
Houston	7.10	8.40	8.45	54.32	7.25	7.20	11.10	13.50	7.25	7.70	8.95
Jackson, Miss.	8.52	9.79	....	....	8.57	8.94	10.68	....	8.97	8.90	10.74
Los Angeles	8.25[2]	10.30[2]	11.90[2]	57.60	8.90	8.70[2]	12.10[2]	16.10	8.50[2]	8.65[2]	10.80[2]
Memphis, Tenn.	8.55	9.80	....	....	8.60	8.97	11.96#	....	9.01	8.93	10.56
Milwaukee	8.33	9.58	10.23	....	8.36	8.73	9.03	14.78	8.85	8.69	10.01
Moline, Ill.	8.55	9.80	10.45	....	8.58	8.95	9.15	....	8.99	8.91	....
New York	8.87	10.13	10.56	53.08	9.31	9.57	12.76#	15.09	9.35	9.43	10.66
Norfolk, Va.	8.40	....	....	....	9.10	9.10	12.00	....	9.40	8.85	10.35
Philadelphia	8.00	8.90	9.92	52.69	8.70	8.65	11.51#	15.01	8.50	8.75	9.75**
Pittsburgh	8.18	9.45	10.45	52.00	8.33	8.60	10.80#	14.65	8.64	8.56	9.88
Portland, Oreg.	8.50	11.20	11.55	57.38	9.55	8.65	14.50	15.95	8.65	8.30	11.50
Richmond, Va.	8.40	....	10.40	....	9.10	9.00	....	....	9.40	8.85	10.35
St. Louis	8.54	9.79	10.36	....	8.59	8.97	9.41	15.01	9.10	8.93	10.25
St. Paul	8.79	10.04	10.71	....	8.84	9.21	9.66	....	9.38	9.30	10.49
San Francisco	9.35	10.75	11.00	55.10	9.45‡‡	9.70	13.00	16.00	9.50	9.60	12.00
Seattle	9.95	11.15	12.20	57.38	10.00	10.10	14.05	16.35	9.80	9.70	12.10
South'ton, Conn.	9.07	10.33	10.71	....	9.48	9.74	....	....	9.57	9.57	10.91
Spokane	9.95	11.15	12.20	57.38	10.00	10.10	14.05	16.35	9.80	9.70	12.10
Washington	8.88	....	....	....	9.36	9.56	10.94	....	9.79	9.26	10.74

*Prices do not include gage extras; †prices include gage and coating extras; ‡includes 35-cent bar quality extras; §42 in. and under; **¼ in. and heavier; ††as annealed; ‡‡¾ in. to 4 in. wide, inclusive; #1 in. round C-1018.

Base quantities, 2000 to 4999 lb except as noted; cold-rolled strip and cold-finished bars, 2000 lb and over except in Seattle, 2000 to 9999 lb; stainless sheets, 8000 lb except in Chicago, New York, Boston, Seattle, Portland, Oreg. 10,000 lb and in San Francisco, 2000 to 4999 lb; hot-rolled products on West Coast, 2000 to 9999 lb, except in Portland, Oreg., 1000 to 9999 lb; [2]—30,000 lb; [5]—1000 to 1999 lb; [10]—2000 lb and over.

Refractories

Fire Clay Brick (per 1000)

High-Heat Duty: Ashland, Grahn, Hayward, Hitchins, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lock Haven, Lumber, Orviston, West Decatur, Winburne, Snow Shoe, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parrall, Portsmouth, Ohio, Ottawa, Ill., Stevens Pottery, Ga., $135; Salina, Pa., $140; Niles, Ohio, $138; Cutler, Utah, $165.

Super-Duty: Ironton, Ohio, Vandalia, Mo., Olive Hill, Ky., Clearfield, Salina, Winburne, Snow Shoe, Pa., New Savage, Md., St. Louis, $175; Stevens Pottery, Ga., $185; Cutler, Utah, $233.

Silica Brick (per 1000)

Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Pt. Matilda, Pa., Portsmouth, Ohio, Hawstone, Pa., $150; Warren, Niles, Windham, Ohio, Hays, Latrobe, Morrisville, Pa., $155; E. Chicago, Ind., Joliet, Rockdale, Ill., $160; Lehigh, Utah, $175; Los Angeles, $180.

Super-Duty: Sproul, Hawstone, Pa., Niles, Warren, Windham, Ohio, Leslie, Md., Athens, Tex., $157; Morrisville, Hays, Latrobe, Pa., $160; E. Chicago, Ind., $167; Curtner, Calif., $182.

Semisilica Brick (per 1000)

Clearfield, Pa., $140; Philadelphia, $137; Woodbridge, N. J., $135.

Ladle Brick (per 1000)

Dry Pressed: Aisey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Vanport, Pa., Mexico, Vandalia, Mo., Wellsville, Irondale, New Salisbury, Ohio, $96.75; Clearfield, Pa., Portsmouth, Ohio, $102.

High-Alumina Brick (per 1000)

50 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $235; Danville, Ill., $238; Philadelphia, Clearfield, Pa., $230; Orviston, Snow Shoe, Pa., $245.

60 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $295; Danville, Ill., $298; Clearfield, Orviston, Snow Shoe, Pa., $305; Philadelphia, $310.

70 *Per Cent:* St. Louis, Mexico, Vandalia, Mo., $335; Danville, Ill., $338; Clearfield, Orviston, Snow Shoe, Pa., $345; Philadelphia, $350.

Sleeves (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, $188.

Nozzles (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, $310.

Runners (per 1000)

Reesdale, Johnstown, Bridgeburg, Pa., $234.

Dolomite (per net ton)

Domestic, dead-burned, bulk, Billmeyer, Blue Bell, Williams, Plymouth Meeting, York, Pa., Millville, W. Va., Bettsville, Millersville, Martin, Woodville, Gibsonburg, Narlo, Ohio, $16.75; Thornton, McCook, Ill., $17; Dolly Siding, Bonne Terre, Mo., $15.60.

Magnesite (per net ton)

Domestic, dead-burned, ½ in. grains with fines: Whewelah, Wash., Luning, Nev., $46; ⅝ in. grains with fines: Baltimore, $73.

Fluorspar

Metallurgical grades, f.o.b. shipping point in Ill., Ky., net tons, carloads, effective CaF_2 content 72.5%, $37-$41; 70%, $36-$40; 60%, $33-$36.50. Imported, net tons, f.o.b. cars point of entry, duty paid, metallurgical grade: European, $29-$31, contract; Mexican, all rail, duty paid, $25; barge, Brownsville, Tex., $26.

Metal Powder

(Per pound f.o.b. shipping point in ton lots for minus 100 mesh, except as noted)

	Cents
Sponge Iron, Swedish: deld. east of Mississippi River, ocean bags 23,000 lb and over	10.50
F.o.b. Riverton or Camden, N. J., west of Mississippi River	9.50
Sponge Iron, Domestic, 98 + % Fe: Deld. east of Mississippi River, 23,000 lb and over	10.50
Electrolytic Iron: Melting stock, 99.9% Fe, irregular fragments of ⅛ in. x 1.3 in.	28.00
Annealed, 99.5% Fe	36.50
Unannealed (99 + % Fe)	36.00
Unannealed (99 + % Fe) (minus 325 mesh)	59.00
Powder Flakes (minus 16, plus 100 mesh)	29.00
Carbonyl Iron: 98.1-99.9%, 3 to 20 microns, depending on grade, 93.00-290.00 in standard 200-lb containers; all minus 200 mesh.	

Aluminum: Atomized, 500-lb drum, freight allowed Carlots	39.50
Ton lots	41.50
Antimony, 500-lb lots	42.00*
Brass, 5000-lb lots	31.00-46.70†
Bronze, 5000-lb lots	47.20-51.50†
Copper: Electrolytic	14.75*
Reduced	14.75*
Lead	7.50*
Manganese: Minus 35 mesh	64.00
Minus 100 mesh	70.00
Minus 200 mesh	75.00
Nickel, unannealed	74.00
Nickel-Silver, 5000-lb lots	48.80-53.50†
Phosphor-Copper, 5000-lb lots	59.30
Copper (atomized) 5000-lb lots	39.80-48.30†
Silicon	47.50
Solder	7.00*
Stainless Steel, 304	$1.07
Stainless Steel, 316	$1.26
Tin	14.50*
Zinc, 5000-lb lots	17.50-30.70‡

Tungsten:	Dollars
Melting grade, 99% 60 to 200 mesh, nominal; 1000 lb and over	3.15
Less than 1000 lb	3.30
Chromium, electrolytic 99.8% Cr min metallic basis	5.00

*Plus cost of metal. †Depending on composition. ‡Depending on mesh.

Electrodes

Threaded with nipple; unboxed, f.o.b. plant

GRAPHITE

Inches Diam	Inches Length	Per 100 lb
2	24	$60.75
2½	30	39.25
3	40	37.00
4	40	35.00
5⅛	40	34.75
6	60	31.50
7	60	28.25
8, 9, 10	60	28.00
12	72	26.75
14	60	26.75
16	72	25.75
17	60	26.25
18	72	26.25
20	72	25.25
24	84	26.00

CARBON

8	60	13.30
10	60	13.00
12	60	12.95
14	60	12.85
14	72	11.95
17	60	11.85
17	72	11.40
20	84	11.40
20	90	11.00
24	72, 84	11.25
24	96	10.95
30	84	11.05
40, 35	110	10.70
40	100	10.70

Imported Steel

(Base per 100 lb, landed, duty paid, based on current ocean rates. Any increase in these rates is for buyer's account. Source of shipment: Western continental European countries.)

	North Atlantic	South Atlantic	Gulf Coast	West Coast
Deformed Bars, Intermediate, ASTM-A 305	$5.30	$5.30	$5.30	$5.50
Bar Size Angles	5.05	5.05	5.05	5.42
Structural Angles	5.05	5.05	5.05	5.42
I-Beams	5.11	5.11	5.11	5.45
Channels	5.11	5.11	5.11	5.45
Plates (basic bessemer)	6.62	6.62	6.62	6.94
Sheets, H.R.	8.20	8.20	8.20	8.50
Sheets, C.R. (drawing quality)	8.75	8.75	8.75	9.12
Furring Channels, C.R., 1000 ft, ¾ x 0.30 lb per ft	25.71	25.59	25.59	26.46
Barbed Wire (†)	6.65	6.65	6.65	7.00
Merchant Bars	6.07	6.07	6.07	6.43
Hot-Rolled Bands	7.15	7.15	7.15	7.55
Wire Rods, Thomas Commercial No. 5	6.50	6.50	6.50	6.90
Wire Rods, O.H. Cold Heading Quality No. 5	7.07	7.07	7.07	7.47
Bright Common Wire Nails (§)	8.02	8.02	7.92	8.20

†Per 82 lb net reel. §Per 100-lb kegs, 20d nails and heavier.

Ores

Lake Superior Iron Ore

(Prices effective for the 1958 shipping season, gross ton, 51.50% iron natural, rail of vessel, lower lake ports.)

Mesabi bessemer	$11.60
Mesabi nonbessemer	11.45
Old Range bessemer	11.85
Old Range nonbessemer	11.70
Open-hearth lump	12.70
High phos	11.45

The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates, handling and unloading charges, and taxes thereon, which were in effect Jan. 30, 1957, and increases or decreases after that date are absorbed by the seller.

Eastern Local Iron Ore

Cents per unit, deld. E. Pa.

New Jersey, foundry and basic 62-64% concentrates	18.00-19.00

Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 65%	25.00
N. African hematite (spot)	nom.
Brazilian iron ore, 68.5%	14.60

Tungsten Ore

Net ton, unit

Foreign wolframite, good commercial quality	$9.50-10.00
Domestic, concentrates f.o.b. milling points	17.00-22.00

*Before duty.

Manganese Ore

Mn 46-48%, Indian (export tax included), $1.15 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; other than Indian, nominal; contracts by negotiation.

Chrome Ore

Gross ton, f.o.b. cars New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., Tacoma, Wash.

Indian and Rhodesian

48% 3:1	$46.00-48.00
48% 2.8:1	42.00-44.00
48% no ratio	32.00-34.00

South African Transvaal

48% no ratio	$32.00-34.00
44% no ratio	24.00-25.00

Turkish

48% 3:1	$51.00-55.00

Domestic

Rail nearest seller

18% 3:1	39.00

Molybdenum

Sulfide concentrate, per lb of Mo content, mines, unpacked	$1.23

Antimony Ore

Per short ton unit of Sb content, c.i.f. seaboard

50-55%	$2.25-2.40
60-65%	2.50-3.10

Vanadium Ore

Cents per lb V_2O_5

Domestic	31.00

Metallurgical Coke

Price per net ton

Beehive Ovens

Connellsville, Pa., furnace	$14.75-15.75
Connellsville, Pa., foundry	18.00-18.50

Oven Foundry Coke

Birmingham, ovens	$28.85
Cincinnati, deld.	31.84
Buffalo, ovens	30.50
Camden, N. J., ovens	29.50
Detroit, ovens	30.50
Pontiac, Mich., deld.	32.45
Saginaw, Mich., deld.	34.03
Erie, Pa., ovens	30.50
Everett, Mass., ovens: New England, deld.	31.55*
Indianapolis, ovens	29.75
Ironton, Ohio, ovens	29.00
Cincinnati, deld.	31.84
Kearny, N. J., ovens	29.75
Milwaukee, ovens	30.50
Neville Island (Pittsburgh), Pa., ovens	29.25
Painesville, Ohio, ovens	30.50
Cleveland, deld.	32.69
Philadelphia, ovens	29.50
St. Louis, ovens	31.50
St. Paul, ovens	29.75
Chicago, deld.	33.29
Swedeland, Pa., ovens	29.50
Terre Haute, Ind., ovens	29.75

*Or within $4.85 freight zone from works.

Coal Chemicals

Spot, cents per gallon, ovens

Pure benzene	36.00
Toluene, one deg	29.50
Industrial xylene	32.00-34.00

Per ton, bulk, ovens

Ammonium sulfate	$32.00-34.00

Cents per pound, producing point

Phenol: Grade 1, 17.50; Grade 2-3, 15.50; Grade 4, 17.50; Grade 5, 16.50; Grade 6, 14.50.

Ferroalloys

MANGANESE ALLOYS

Spiegeleisen: Carlot, per gross ton. Palmerton, Neville Island, Pa. 21-23% Mn, $105; 19-21% Mn, 1-3% Si, $102.50; 16-19% Mn, $100.50.

Standard Ferromanganese: (Mn 74-76%, C 7% approx) base price per net ton, $245. Johnstown, Duquesne, Sheridan, Neville Island, Pa.; Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Add or subtract $2 for each 1% or fraction thereof of contained manganese over 76% or under 74%, respectively. (Mn 79-81%), Lump $253 per net ton, f.o.b. Anaconda or Great Falls, Mont. Add $2.60 for each 1% above 81%; subtract $2.60 for each 1% below 79%, fractions in proportion to nearest 0.1%.

High-Grade Low-Carbon Ferromanganese: (Mn 85-90%). Carload, lump, bulk, max 0.07% C, 35.1c per lb of contained Mn, carload packed 36.4c, ton lots 37.9c, less ton 39.1c. Delivered. Deduct 1.5c for max 0.15% C grade from above prices, 3c for max 0.03% C, 3.5c for max 0.5% C, and 6.5c for max 75% C—max 7% Si. **Special Grade:** (Mn 90% min, C 0.07% max, P 0.06% max). Add 2.05c to the above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.25-1.5%, Si 1.5% max). Carload, lump, bulk, 25.5c per lb of contained Mn, packed, carload 26.8c, ton lot 28.4c, less ton 29.6c. Delivered. Spot, add 0.25c.

Manganese Metal: 2" x D (Mn 95.5% min, Fe 2% max, Si 1% max, C 0.2%). Carload, lump, bulk, 45c per lb of metal; packed, 45.75c; ton lot 47.25c; less ton lot 49.25c. Delivered. Spot, add 2c.

Electrolytic Manganese Metal: Min carload, 34c; 2000 lb to min carload, 36c; less ton, 38c; 50 lb cans, add 0.5c per lb. Premium for hydrogen-removed metal, 0.75c per lb. Prices are f.o.b. cars, Knoxville, Tenn., freight allowed to St. Louis or any point east of Mississippi; or f.o.b. Marietta, O., freight allowed.

Silicomanganese: (Mn 65-68%). Carload, lump, bulk 1.50% C grade, 18-20% Si, 12.8c per lb of alloy. Packed, c.l. 14c, ton 14.45c, less ton 15.45c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. For 2% C grade, Si 15-17%, deduct 0.2% from above prices. For 3% C grade, Si 12-14.5%, deduct 0.4c from above prices. Spot, add 0.25c.

TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max). Contract, ton lot, 2" x D, $1.50 per lb of contained Ti; less ton $1.55. (Ti 38-43%, Al 8% max, Si 4% max, C 0.10% max). Ton lot $1.35, less ton $1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract c.l. $240 per ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi River and north of Baltimore and St. Louis. Spot, $245.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4%). Contract c.l. $290 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed. Spot, $295.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l. lump, bulk 28.75c per lb of contained Cr; c.l. packed 30.30c, ton lot 32.05c; less ton 33.45c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome: Cr 63-66% (Simplex), carload, lump, bulk, C 0.025% max, 36.75c per lb contained Cr; 0.010% max, 37.75c. Ton lot, add 3.5c; less ton, add 5.2c. Delivered.

Cr 67-71%, carload, lump, bulk, C 0.02% max, 41.00c per lb contained Cr; 0.025% max, 39.75c; 0.05% max, 39.00c; 0.10% max, 38.50c; 0.20% max, 38.25c; 0.50% max, 38.00c; 1.0% max, 37.75c; 1.5% max, 37.50c; 2.0% max, 37.25c. Ton lot, add 3.4c; less ton lot, add 5.1c. Delivered.

Foundry Ferrochrome, High-Carbon: (Cr 61-66%, C 5-7%, Si 7-10%). Contract, c.l., 2 in. x D, bulk 30.05c per lb of contained Cr. Packed, c.l. 31.65c, ton 33.45c, less ton 34.95c. Delivered. Spot, add 0.25c.

Foundry Ferrosilicon Chrome: (Cr 50-54%, Si 28-32%, C 1.25% max). Contract, carload packed, 8M x D, 21.25c per lb of alloy, ton lot 22.50c; less ton lot 23.70c. Delivered. Spot, add 0.25c.

Ferrochrome-Silicon: Cr 39-41%, Si 42-45%, C 0.05% max or Cr 33-36%, Si 45-48%, C 0.05% max. Carload, lump, bulk, 3" x down and 2" x down, 27.50c per lb contained Cr, 14.20c per lb contained Si. 0.75" x down, 28.65c per lb contained Cr, 14.20c per lb contained Si. Delivered.

Chromium Metal, Electrolytic: Commercial grade (Cr 99.8% min, metallic basis, Fe 0.2% max). Contract, carlot, packed 2" x D plate (about ⅛" thick) $1.29 per lb, ton lot $1.31, less ton lot $1.33. Delivered. Spot, add 5c.

VANADIUM ALLOYS

Ferrovanadium: Open-hearth grade (V 50-55%, Si 8% max, C 3% max). Contract, any quantity, $3.20 per lb of contained V. Delivered. Spot, add 10c. **Special Grade:** (V 50-55% or 70-75%, Si 2% max, C 0.5% max) $3.30. **High Speed Grade:** (V 50-55%, or 70-75%, Si 1.50% max, C 0.20% max) $3.40.

Grainal: Vanadium Grainal No. 1 $1.05 per lb; No. 79, 50c, freight allowed.

Vanadium Oxide: Contract less carload lot, packed, $1.38 per lb contained V_2O_5, freight allowed. Spot, add 5c.

SILICON ALLOYS

50% Ferrosilicon: Contract, carload, lump, bulk, 14.20c per lb of contained Si. Packed c.l. 16.70c, ton lot 18.15c, less ton 19.80c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max). Add 1.45c to 50% ferrosilicon prices.

65% Ferrosilicon: Contract, carload, lump, bulk, 15.25c per lb contained silicon. Packed, c.l. 17.25c, ton lot 19.05c, less ton 20.4c. Delivered. Spot, add 0.35c.

75% Ferrosilicon: Contract, carload, lump, bulk, 16.4c per lb of contained Si. Packed, c.l. 18.30c, ton lot 19.95c, less ton 21.2c. Delivered. Spot, add 0.3c.

90% Ferrosilicon: Contract, carload, lump, bulk, 19.5c per lb of contained Si. Packed, c.l. 21.15c, ton lot 22.55c, less ton 23.6c. Delivered. Spot, add 0.25c.

Silicon Metal: (98% min Si, 1.00% max Fe, 0.07% max Ca). C.l. lump, bulk, 21.00c per lb of Si. Packed, c.l. 22.65c, ton lot 23.95c, less ton 24.95c. Add 0.5c for max 0.03% Ca grade. Add 0.5c for 0.50% Fe grade analyzing min 98.25% min Si.

Alsifer: (Approx 20% Al, 40% Si, 40% Fe). Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.60c per lb of alloy; ton lot, packed, 10.95c.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 39-43%, C 0.20% max). Contract, c.l. lump, bulk, 9.25c per lb of alloy. Packed, c.l. 10.45c, ton lot 11.6c, less ton 12.45c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max). Contract, carload, lump, packed 27.25c per lb of alloy, ton lot 28.4c less ton 29.65c. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: (B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max). Contract, 100 lb or more 1" x D, $1.20 per lb of alloy; less than 100 lb $1.30. Delivered. Spot, add 5c. F.o.b. Washington, Pa., prices, 100 lb and over are as follows: Grade A (10-14% B) 85c per lb; Grade B (14-18% B) $1.20; Grade C (19% min B) $1.50.

Borosil: (3 to 4% B, 40 to 45% Si). Carload, bulk, lump, or 3" x D, $5.25 per lb of contained B. Packed, carload $5.40, ton to c.l. $5.50, less ton $5.60. Delivered.

Carbortam: (B 1 to 2%). Contract, lump, carload $320 per ton, f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 23c per lb of alloy, carload packed 24.25c, ton lot 26.15c, less ton 27.15c. Delivered. Spot, add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.5-3%). Contract, carload, lump, bulk 24c per lb of alloy, carload packed 25.65c, ton lot 27.95c, less ton 29.45c. Delivered. Spot, add 0.25c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx 3⅝ lb each and containing 2 lb of Cr). Contract, carload, bulk 19.60c per lb of briquet, carload packed in box pallets 19.80c, in bags 20.70c; 3000 lb to c.l. in box pallets 21.00c; 2000 lb to c.l. in bags 21.90c; less than 2000 lb in bags 22.80c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx 3 lb and containing 2 lb of Mn). Contract, carload, bulk 14.8c per lb of briquet; c.l., packed, pallets 15c, bags 16c; 3000 lb to c.l., pallets 16.2c; 2000 lb to c.l., bags, 17.2c; less ton 18.1c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx 3½ lb and containing 2 lb of Mn and approx ½ lb of Si). Contract, c.l. bulk 15.1c per lb of briquet; c.l. packed, pallets, 15.3c; bags 16.3c, 3000 lb to c.l., pallets, 16.5c; 2000 lb to c.l., bags 17.5c; less ton 18.4c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx 5 lb and containing 2 lb of Si). Contract, carload bulk 7.7c per lb of briquet; packed, pallets, 7.9c; bags 8.9c; 3000 lb to c.l., pallets 9.5c; 2000 lb to c.l., bags 10.5c; less ton 11.4c Delivered. Spot, add 0.25c. (Small size—weighing approx 2½ lb and containing 1 lb of Si). Carload, bulk 7.85c. Packed, pallets 8.05c; bags 9.05c; 3000 lb to c.l., pallets 9.65c; 2000 lb to c.l., bags, 10.65c; less ton 11.55c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each). $1.41 per pound of Mo contained, f.o.b. Langeloth, Pa.

TUNGSTEN ALLOYS

Ferrotungsten: (70-80%), 5000 lb W or more $2.15 per lb (nominal) of contained W. Delivered.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 50-60%, Si 8% max, C 0.4% max). Ton lots 2" x D, $4 per lb of contained Cb; less ton lots, $4.05 (nominal). Delivered.

Ferrotantalum Columbium: (Cb 40% approx, Ta 20% approx, and Cb plus Ta 60% min, C 0.30% max). Ton lot 2" x D, $3.80 per lb of contained Cb plus Ta, delivered; less ton lot $3.85 (nominal).

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx). Contract, c.l. packed ½-in. x 12 M 20.00c per lb of alloy, ton lot 21.15c, less ton 22.40c. Delivered. Spot, add 0.25c.

Graphidox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 20c per lb of alloy, ton lot 21.15c; less ton lot 22.4c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed 18.45c per lb of alloy; ton lot 19.95c; less ton lot 21.20c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

Simanal: (Approx 20% each Si, Mn, Al; bal Fe). Lump, carload, bulk 18.50c. Packed c.l. 19.50c, 2000 lb to c.l. 20.50c; less than 2000 lb 21c per lb of alloy. Delivered.

Ferrophosphorus: (23-25% based on 24% P content with unitage of $5 for each 1% of P above or below the base): carload, bulk, f.o.b. sellers' works, Mt. Pleasant, Siglo, Tenn., $120 per gross ton.

Ferromolybdenum: (55-75%). Per lb of contained Mo, in 200-lb container, f.o.b. Langeloth and Washington, Pa. $1.68 in all sizes except powdered which is $1.74.

Technical Molybdic-Oxide: Per lb of contained Mo, in cans, $1.39; in bags, $1.38, f.o.b. Langeloth and Washington, Pa.

(Concluded from Page 104)

STRUCTURAL STEEL PENDING

5245 tons, section, State Bronx Expressway, New York, bids Aug. 7.

1259 tons, state bridgework, Niagara County, New York, bids Aug. 7.

780 tons, three-span welded girder bridge, Naugatuck River, Derby, Conn.; Mariani Construction Co., New Haven, Conn., general contractor.

615 tons, four state bridges, one pedestrian bridge and underpass, Waterbury, Conn.; D. Arrigoni Construction Co., Middletown, Conn., general contractor.

485 tons, four-span plate girder bridge, Farmington River, Bloomfield-East Granby, Conn.; M. A. Gammino Construction Co., Providence, R. I., general contractor.

335 tons, two grade separation structures, Route 9, Bloomfield-Simsburg, Conn.; Enfield Road Construction Co., Enfield, Conn., general contractor.

100 tons or more, gates, trash racks, etc.; also 25 tons of reinforcing, diversion canal, Rouge River project, Oregon; bids to the Bureau of Reclamation, Camp White, Oreg., Aug. 20.

100 tons or more, 350-ft welded plate highway bridge, Lincoln County, Oreg.; Workman & Wilson, Canby, Oreg., low at $127,720.

REINFORCING BARS . . .

REINFORCING BARS PLACED

260 tons, Washington State undercrossing, Pierce County, to Bethlehem-Pacific Coast Steel Corp., Seattle; general contract to Ostruske-Murphy Inc., Tacoma, Wash., low at $162,000.

200 tons, two Washington State highway bridges, Okanogan County, to Soule Steel Co., Portland, Oreg.; Everett McKellar, Chelan, Oreg., general contractor, low at $414,000.

150 tons, miscellaneous small projects, to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

600 tons, North Seattle High School; general contract to Sound Construction & Engineering Co., Seattle, low at $2,364,636.

260 tons, airfield project, Fairbanks, Alaska; general contract to Donald W. Close Co. Seattle.

250 tons, also gates and equipment, Eagle Gorge Dam, Green River, Washington State; U. S. Engineer, Seattle, to invite bids in September for November opening.

100 tons, Washington State girder bridge, Cowlitz County; R. L. Martin, Oswego, Oreg., low at $161,201.

100 tons, West Seattle sewage plant; G. R. Leischner Co., Seattle, low.

100 tons, junior high school, Renton, Wash.; George E. Teufel Co., Seattle, low base bid at $651,670.

85 tons, Washington State highway bridge, Pierce County; bids to Olympia, Wash., Aug. 19.

70 tons, Washington State slab overcrossing, Grant County; bid to Olympia, Wash., Aug. 19.

54 tons, two schedules, additions to Seattle-Tacoma International Airport; James I. Barnes Construction Co., Seattle, low at $420,000 and $112,582, to the Port of Seattle.

Unstated, junior high school, Opportunity, Wash.; Peter J. Young, Spokane, Wash., low base $455,600.

Unstated, four Idaho State highway bridges, Teton County; Eagle Construction Co., Boise, Idaho, low at $593,293.

Unstated, Idaho State highway project, Bannock County; general contract to Cherf Bros. & Sandkay Contractors, Ephrata, Wash., low at $989,883.

Unstated, Idaho highway bridges, Clark and Jefferson Counties; general contract to Western Construction Co., Pocatello, Idaho, low at $168,499.

Unstated, Oregon State, low bids on highway projects, Clatsop County, 210-ft bridge, R. L. Martin Co., Oswego, Oreg., $40,129; Coos County, 210-ft bridge and approaches, Sig Anderson Co., Coos Bay $128,803; also 90-ft bridge and paving, F. L. Somers, Medford, $631,055; Polk County, 182-ft span, O. C. Bennard, Portland, Oreg., $40,043; Washington County, 172-ft deck girder, Valley Construction Co., Portland, Oreg., $51,255.

PLATES . . .

PLATES PLACED

100 tons or more, standpipe, Stoughton, Mass., to Graver Tank & Mfg. Co. Inc., Chicago.

PLATES PENDING

1041 tons, carbon, Mil-S-16113B (Navy); bids Aug. 11, General Stores Supply Office, Philadelphia.

505 tons, alloy, high tensile, grade HY-80; bids Aug. 11, Navy Purchasing Office, Washington, D. C.

130 tons, elevated water tank, District No. 100, Seattle; bids in.

125 tons, high tensile, grade H; bids Aug. 11, Navy Purchasing Office, Washington, D.C.; also 65 tons, carbon bars, flats, grade M, bids Aug. 12.

Unstated, bulk storage fuel facility, Fairbanks, Alaska, to Chris. Berg Inc., Seattle, low at $83,400, to the Bureau of Public Roads.

PIPE . . .

CAST IRON PIPE PLACED

151 tons, 4 to 8 in., Aberdeen, Wash., to the Pacific States Cast Iron Pipe Co., Seattle.

CAST IRON PIPE PENDING

300 tons, 8 in., two local improvement districts; bids in to Seattle.

150 tons, 3600 ft of 12 in.; bids to James Davies, secretary, Alderwood Manor, Wash., Aug. 11.

100 tons, 4 and 6 in., and fittings; bids to District No. 61, Seattle, Aug. 7.

Unstated, 1100 ft, submarine crossing; bids to John L. Sugars, clerk, Everett, Wash., Aug. 14.

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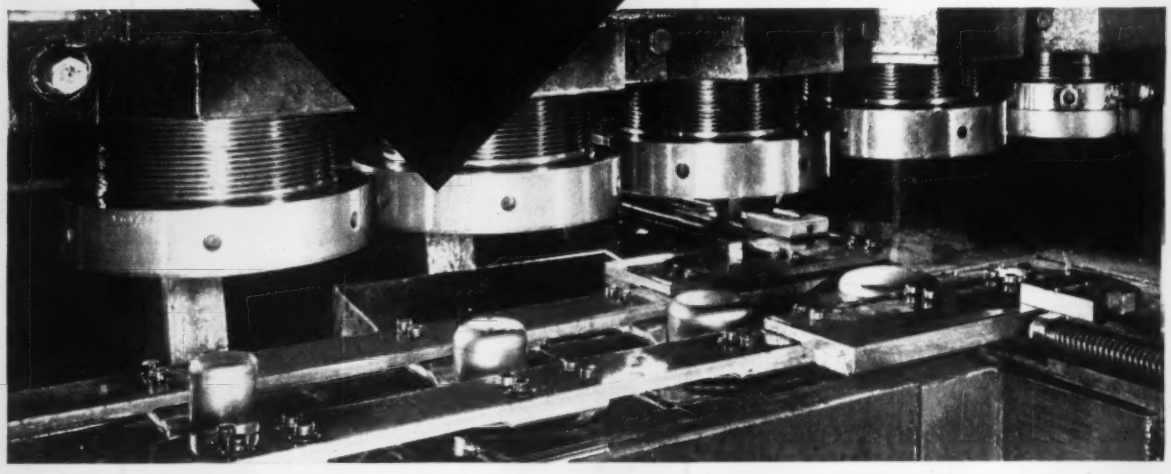

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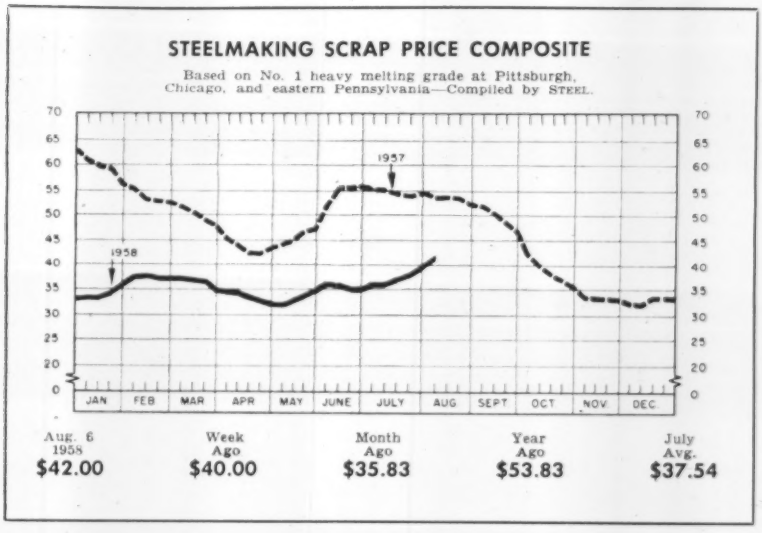

STEELMAKING SCRAP PRICE COMPOSITE
Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania—Compiled by STEEL.
1957
1958
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
Aug. 6, 1958 $42.00
Week Ago $40.00
Month Ago $35.83
Year Ago $53.83
July Avg. $37.54

Scrap Rise Meets Buyer Resistance

STEEL's composite advances further to $42, but consumers withdraw from market after brief buying flurry. National ingot rate holds unchanged at 59 per cent of capacity

Scrap Prices, Page 118

Pittsburgh — Brokers think the market has lost much of its upward momentum. They expect little change through the end of the month, unless a shortage of railroad scrap develops. Higher prices paid for industrial bundles and railroad scrap reflect brokers' confidence that mills will soon increase their purchases. Fisher Body bundles brought $49.30, about $10 more than last month. The B&O Railroad sold scrap to brokers at these prices: No. 1 heavy melting, $48.75 (up $8); specialties, $51.25 (up $6); random rails, $57.

Philadelphia — Most grades of scrap are higher and are reaching a point where sellers are a little more inclined than they were to let go of some tonnage. This is especially true as two of the larger eastern consumers show no signs of early buying.

Based on small purchases, No. 1 and No. 2 heavy melting are higher at $38 and $34. Also on modest buying, No. 1 bundles and No. 1 busheling are up $2 a ton to $38, delivered; and electric furnace bundles are up $1 to $39. Short shoveling turnings are up $2 to $23; machine shop turnings, $1 to $20; and heavy turnings, $3 to $33. No. 2 bundles are nominally higher at $25.

Other revisions include a $2 advance on rail crops, 2 ft and under, to a spread of $57-$58, delivered; and a $1 increase on drop broken machinery cast to $48-$50. No. 1 cupola cast is holding at $40, up from a spread of $38-$40. Heavy breakable cast is unchanged at $41, delivered.

About 2500 tons of short shoveling turnings are being loaded for export at this port.

New York—Major grades of scrap are in tight supply, with brokers having to advance their buying prices on several items. They have increased their offerings on No. 1 heavy melting and No. 1 bundles to $32-$33, on No. 2 bundles to $19-$20. They are paying higher prices for low phos structurals and plates ($35-$36) and $27-$28 for unstripped motor blocks.

Boston — The heavier grades of steel scrap are firmer, being quoted $1 to $2 a ton higher. No. 2 heavy melting and No. 2 bundles are $2 higher on buying, including export for August. No. 1 and mixed cupola cast are also stronger.

Chicago—Scrap prices are still climbing—but not as fast as they were. Open hearth grades are up only $1 or so over what they were a week ago. Steel mill resistance is responsible for the weaker price tone. Mills simply are not buying. In the last three weeks the Chicago district steelmaking rate has increased about 2 points weekly, and the national rate has climbed an average of 1.5 points for four weeks. The advance in scrap prices has been at a much faster pace.

Cleveland—There haven't been any sales of open-hearth scrap here the last week or so, but on the basis of the last sale of the grade in the Valley at $43, the market here has moved up about $1 on No. 1 heavy melting—now quoted at $39.50-$40.50. The blast furnace grades are also stronger and higher, as are the foundry grades on some buying by the casting shops. Several items on the railroad list have been marked up $2 and $3 a ton.

Youngstown — Scrap dealers are keeping a watchful eye on market developments. Some new orders are expected following last week's rise of No. 1 heavy melting to $43, based on orders from two major mills. There are large tonnages of No. 2 scrap on hand, and little interest is being shown in that grade. Substantial buying of No. 1 grade, though, will be quickly reflected in better demand for No. 2.

Detroit—Lack of orders following an upsurge in auto list prices has caused a momentary halt in dealer confidence, although the immediate outlook still is bullish. Foundry items reflect the recent steel scrap price increases.

Two days after the auto lists closed dealers started talking lower prices on small tonnage offerings, particularly on No. 1 grades. Sheet clippings, going for $38-$39 shortly after the lists closed, dropped back to around $36-$37 by the middle of last week.

Buffalo—Scrap prices here jumped last week on mill business for August delivery. A leading consumer paid $30 for No. 2 heavy melting and $28 for No. 2 bundles. Both grades are up $6 from previous sales.

No. 1 heavy melting at $34-$35 is up $7 a ton, primarily on sales to out-of-district buyers. The blast

(*Please turn to Page* 123)

Iron and Steel Scrap

Consumer prices per gross ton, except as otherwise noted, including brokers' commission, as reported to STEEL, Aug. 6, 1958. *Changes shown in italics.*

STEELMAKING SCRAP COMPOSITE

Aug. 6	$42.00
July 30	40.00*
July Avg.	37.54*
Aug. 1957	53.33
Aug. 1953	43.40

Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania.

*Revised.

PITTSBURGH

No. 1 heavy melting	*44.00-45.00*
No. 2 heavy melting	*35.00-36.00*
No. 1 dealer bundles	*44.00-45.00*
No. 2 bundles	*33.00-34.00*
No. 1 busheling	*44.00-45.00*
No. 1 factory bundles	*49.00-50.00*
Machine shop turnings	*20.00-21.00*
Mixed borings, turnings	*20.00-21.00*
Short shovel turnings	*24.00-25.00*
Cast iron borings	*24.00-25.00*
Cut structurals:	
2 ft and under	*47.00-48.00*
3 ft lengths	*46.00-47.00*
Heavy turnings	*41.00-42.00*
Punchings & plate scrap	*49.00-50.00*
Electric furnace bundles	*49.00-50.00*

Cast Iron Grades

No. 1 cupola	*43.00-44.00*
Stove plate	*41.00-42.00*
Unstripped motor blocks	23.00-24.00
Clean auto cast	39.00-40.00
Drop broken machinery	*51.00-52.00*

Railroad Scrap

No. 1 R.R. heavy melt.	*49.00-50.00*
Rails, 2 ft and under	*57.00-58.00*
Rails, 18 in. and under	*58.00-59.00*
Random rails	*54.00-55.00*
Railroad specialties	*51.00-52.00*
Angles, splice bars	*53.00-54.00*
Rails, rerolling	58.00-59.00

Stainless Steel Scrap

18-8 bundles & solids	190.00-195.00
18-8 turnings	100.00-105.00
430 bundles & solids	110.00-115.00
430 turnings	50.00-52.00

CHICAGO

No. 1 hvy melt., indus.	*44.00-45.00*
No. 1 hvy melt., dealer	*42.00-43.00*
No. 2 heavy melting	36.00-37.00
No. 1 factory bundles	48.00-49.00
No. 1 dealer bundles	42.00-43.00
No. 2 bundles	29.00-30.00
No. 1 busheling, indus.	*44.00-45.00*
No. 1 busheling, dealer	*42.00-43.00*
Machine shop turnings	*23.00-24.00*
Mixed borings, turnings	*25.00-26.00*
Short shovel turnings	*25.00-26.00*
Cast iron borings	*25.00-26.00*
Cut structurals, 3 ft	*49.00-50.00*
Punchings & plate scrap	*50.00-51.00*

Cast Iron Grades

No. 1 cupola	*45.00-46.00*
Stove plate	*43.00-44.00*
Unstripped motor blocks	*38.00-39.00*
Clean auto cast	*51.00-52.00*
Drop broken machinery	*51.00-52.00*

Railroad Scrap

No. 1 R.R. heavy melt.	*48.00-49.00*
R.R. malleable	*57.00-58.00*
Rails, 2 ft and under	*60.00-61.00*
Rails, 18 in. and under	*61.00-62.00*
Angles, splice bars	*55.00-56.00*
Axles	*67.00-68.00*
Rails, rerolling	*64.00-65.00*

Stainless Steel Scrap

18-8 bundles & solids	*185.00-190.00*
18-8 turnings	*100.00-105.00*
430 bundles & solids	*100.00-105.00*
430 turnings	*55.00-60.00*

YOUNGSTOWN

No. 1 heavy melting	43.00-44.00
No. 2 heavy melting	30.00-31.00†
No. 1 busheling	43.00-44.00
No. 1 bundles	43.00-44.00
No. 2 bundles	30.00-31.00†
Machine shop turnings	*15.00-16.00†*
Short shovel turnings	*20.00-21.00*
Cast iron borings	*20.00-21.00*
Low phos.	45.00-46.00
Electric furnace bundles	45.00-46.00

Railroad Scrap

No. 1 R.R. heavy melt.	*47.00-48.00†*

CLEVELAND

No. 1 heavy melting	*39.50-40.50*
No. 2 heavy melting	26.00-27.00
No. 1 factory bundles	*46.00-47.00*
No. 1 bundles	*39.50-40.50*
No. 2 bundles	28.00-29.00
No. 1 busheling	*39.50-40.50*
Machine shop turnings	*14.00-15.00*
Short shovel turnings	*19.00-20.00*
Mixed borings, turnings	*19.00-20.00*
Cast iron borings	*19.00-20.00*
Cut foundry steel	*41.00-42.00*
Cut structurals, plates 2 ft and under	*49.00-50.00*
Low phos, punchings & plate	*41.00-42.00*
Alloy free, short shovel turnings	*22.00-23.00*
Electric furnace bundles	*40.50-41.50*

Cast Iron Grades

No. 1 cupola	*44.00-45.00*
Charging box cast	*37.00-38.00†*
Heavy breakable cast	*36.00-37.00*
Stove plate	*46.00-47.00*
Unstripped motor blocks	*32.00-33.00*
Brake shoes	*36.00-37.00*
Clean auto cast	*49.00-50.00*
Burnt cast	*33.00-34.00*
Drop broken machinery	49.00-50.00

Railroad Scrap

R.R. malleable	60.00-61.00
Rails, 2 ft and under	57.00-58.00
Rails, 18 in. and under	58.00-59.00
Rails, random lengths	*52.00-53.00*
Cast steel	*49.00-50.00*
Railroad specialties	*50.00-51.00*
Uncut tires	*43.00-44.00*
Angles, splice bars	*50.00-51.00*
Rails, rerolling	*56.00-57.00*

Stainless Steel

(Brokers' buying prices; f.o.b. shipping point)

18-8 bundles, solids	*185.00-190.00*
18-8 turnings	*100.00-105.00*
430 clips, bundles, solids	*90.00-100.00*
430 turnings	40.00-50.00

ST. LOUIS

(Brokers' buying prices)

No. 1 heavy melting	*39.00*
No. 2 heavy melting	*37.00*
No. 1 bundles	*41.00*
No. 2 bundles	*30.00*
No. 1 busheling	*41.00*
Machine shop turnings	*20.00†*
Short shovel turnings	*22.00†*

Cast Iron Grades

No. 1 cupola	*45.00*
Charging box cast	*39.00*
Heavy breakable cast	*38.00*
Unstripped motor blocks	*39.00*
Clean auto cast	44.00
Stove plate	44.00

Railroad Scrap

No. 1 R.R. heavy melt.	45.00
Rails, 18 in. and under	*52.00*
Rails, random lengths	48.00
Rails, rerolling	60.00
Angles, splice bars	47.00

BIRMINGHAM

No. 1 heavy melting	*35.00-36.00**
No. 2 heavy melting	*30.00-31.00**
No. 1 bundles	*35.00-36.0**
No. 2 bundles	*20.00-21.00**
No. 1 busheling	*35.00-36.00**
Cast iron borings	12.00-13.00
Machine shop turnings	21.00-22.00
Short shovel turnings	22.00-23.00
Bars, crops and plates	*44.00-45.00*
Structurals & plates	*44.00-45.00*
Electric furnace bundles	*39.00-40.00*
Electric furnace:	
2 ft and under	*38.00-39.00*
3 ft and under	*37.00-38.00*

Cast Iron Grades

No. 1 cupola	*53.00-54.00*
Stove plate	51.00-52.00
Unstripped motor blocks	41.00-42.00
Charging box cast	22.00-23.00
No. 1 wheels	38.00-39.00

Railroad Scrap

No. 1 R.R. heavy melt.	*39.00-40.00*
Rails, 18 in. and under	49.00-50.00
Rails, rerolling	*59.00-60.00*
Rails, random lengths	45.00-46.00
Angles, splice bars	*45.00-46.00*

PHILADELPHIA

No. 1 heavy melting	*38.00*
No. 2 heavy melting	*34.00*
No. 1 bundles	*38.00*
No. 2 bundles	*25.00†*
No. 1 busheling	*38.00*
Electric furnace bundles	*39.00*
Mixed borings, turnings	19.00†
Short shovel turnings	*23.00*
Machine shop turnings	*20.00*
Heavy turnings	*33.00*
Structural & plate	42.00-43.00
Couplers, springs, wheels	43.50
Rail crops, 2 ft & under	*57.00-58.00*

Cast Iron Grades

No. 1 cupola	*40.00*
Heavy breakable cast	41.00†
Malleable	58.00-59.00
Drop broken machinery	*48.00-50.00*

NEW YORK

(Brokers' buying prices)

No. 1 heavy meltingg	*32.00-33.00*
No. 2 heavy melting	29.00
No. 1 bundles	*32.00-33.00*
No. 2 bundles	*19.00-20.00*
Machine shop turnings	8.00-9.00
Mixed borings, turnings	9.00-10.00
Short shovel turnings	11.00-12.00
Low phos (structurals & plates)	*35.00-36.00*

Cast Iron Grades

No. 1 cupola	35.00-36.00
Unstripped motor blocks	*27.00-28.00*
Heavy breakable	33.00-34.00

Stainless Steel

18-8 sheets, clips, solids	165.00-170.00
18-8 borings, turnings	50.00-55.00
410 sheets, clips, solids	50.00-55.00
430 sheets, clips, solids	60.00-65.00

BUFFALO

No. 1 heavy melting	*34.00-35.00*
No. 2 heavy melting	*29.00-30.00*
No. 1 bundles	*34.00-35.00*
No. 2 bundles	*27.00-28.00*
No. 1 busheling	*34.00-35.00*
Mixed borings, turnings	*17.00-18.00*
Machine shop turnings	*14.00-15.00*
Short shovel turnings	*19.00-20.00*
Cast iron borings	*17.00-18.00*
Low phos, structurals and plate, 5 ft and under	*39.00-40.00*
2 ft and under	*43.00-44.00*

Cast Iron Grades

(F.o.b. shipping point)

No. 1 cupola	38.00-39.00
No. 1 machinery	42.00-43.00

Railroad Scrap

Rails, random lengths	*53.00-54.00*
Rails, 3 ft and under	*59.00-60.00*
Railroad specialties	*43.00-44.00*

CINCINNATI

(Buyers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	*38.50-39.50*
No. 2 heavy melting	*33.50-34.50*
No. 1 bundles	*38.50-39.50*
No. 2 bundles	*26.00-27.00*
No. 1 busheling	*38.50-39.50*
Machine shop turnings	*19.00-20.00*
Mixed borings, turnings	*18.00-19.00*
Short shovel turnings	*21.00-22.00*
Cast iron borings	*18.00-19.00*
Low phos. 18 in.	*42.00-43.00*

Cast Iron Grades

No. 1 cupola	*42.00-43.00*
Heavy breakable cast	*34.00-35.00*
Charging box cast	*34.00-35.00*
Drop broken machinery	*46.00-47.00*

Railroad Scrap

No. 1 R.R. heavy melt.	*42.00-43.00*
Rails, 18 in. and under	53.00-54.00
Rails, random lengths	43.00-44.00

HOUSTON

(Brokers' buying prices; f.o.b. cars)

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	32.00
No. 2 bundles	21.00†
Machine shop turnings	14.00
Short shovel turnings	17.00
Low phos. plates structurals	*39.00*

Cast Iron Grades

No. 1 cupola	42.00
Heavy breakable	30.00†
Unstripped motor blocks	36.00

Railroad Scrap

No. 1 R.R. heavy melt	34.00

BOSTON

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	*24.00*
No. 2 heavy melting	*21.00*
No. 1 bundles	*24.00*
No. 2 bundles	*17.00*
No. 1 busheling	*24.00*
Machine shop turnings	6.00-7.00
Mixed borings, turnings	6.00-7.00
Short shovel turnings	7.00-8.00
No. 1 cast	*30.00*
Mixed cupola cast	*29.00*
No. 1 machinery cast	36.00-38.00

DETROIT

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting	*35.00-36.00*
No. 2 heavy melting	*26.00-27.00*
No. 1 bundles	*38.00-39.00*
No. 2 bundles	*23.00-24.00*
No. 1 busheling	*35.00-36.00*
Machine shop turnings	*11.00-12.00*
Mixed borings, turnings	*12.00-13.00*
Short shovel turnings	*13.00-14.00*
Punchings & plate	*35.00-36.00*

Cast Iron Grades

No. 1 cupola	*40.00-41.00*
Stove plate	*30.00-31.00*
Charging box cast	*30.00-31.00*
Heavy breakable	*29.00-30.00*
Unstripped motor blocks	*19.00-20.00*
Clean auto cast	*41.00-42.00*

SEATTLE

No. 1 heavy melting	30.00†
No. 2 heavy melting	28.00†
No. 1 bundles	22.00†
No. 2 bundles	20.00†
Machine shop turnings	9.00-10.00†
Mixed borings, turnings	9.00-10.00†
Electric furnace No. 1	38.00

Cast Iron Grades

No. 1 cupola	31.00
Heavy breakable cast	28.00
Unstripped motor blocks	23.00
Stove plate (f.o.b. plant)	21.00

LOS ANGELES

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	28.00
No. 2 bundles	20.00
Machine shop turnings	11.00
Shoveling turnings	11.00
Cast iron borings	11.00
Cut structurals and plate 1 ft and under	45.00

Cast Iron Grades

(F.o.b. shipping point)

No. 1 cupola	41.00

Railroad Scrap

No. 1 R.R. heavy melt.	32.00

SAN FRANCISCO

No. 1 heavy melting	32.00
No. 2 heavy melting	30.00
No. 1 bundles	30.00
No. 2 bundles	22.00
Machine shop turnings	15.00
Mixed borings, turnings	15.00
Cast iron borings	15.00
Heavy turnings	15.00
Short shovel turnings	15.00
Cut structurals, 3 ft	40.00

Cast Iron Grades

No. 1 cupola	42.00
Charging box cast	34.00
Stove plate	34.00
Heavy breakable cast	28.00
Unstripped motor blocks	31.00
Clean auto cast	40.00
Drop broken machinery	40.00
No. 1 wheels	34.00

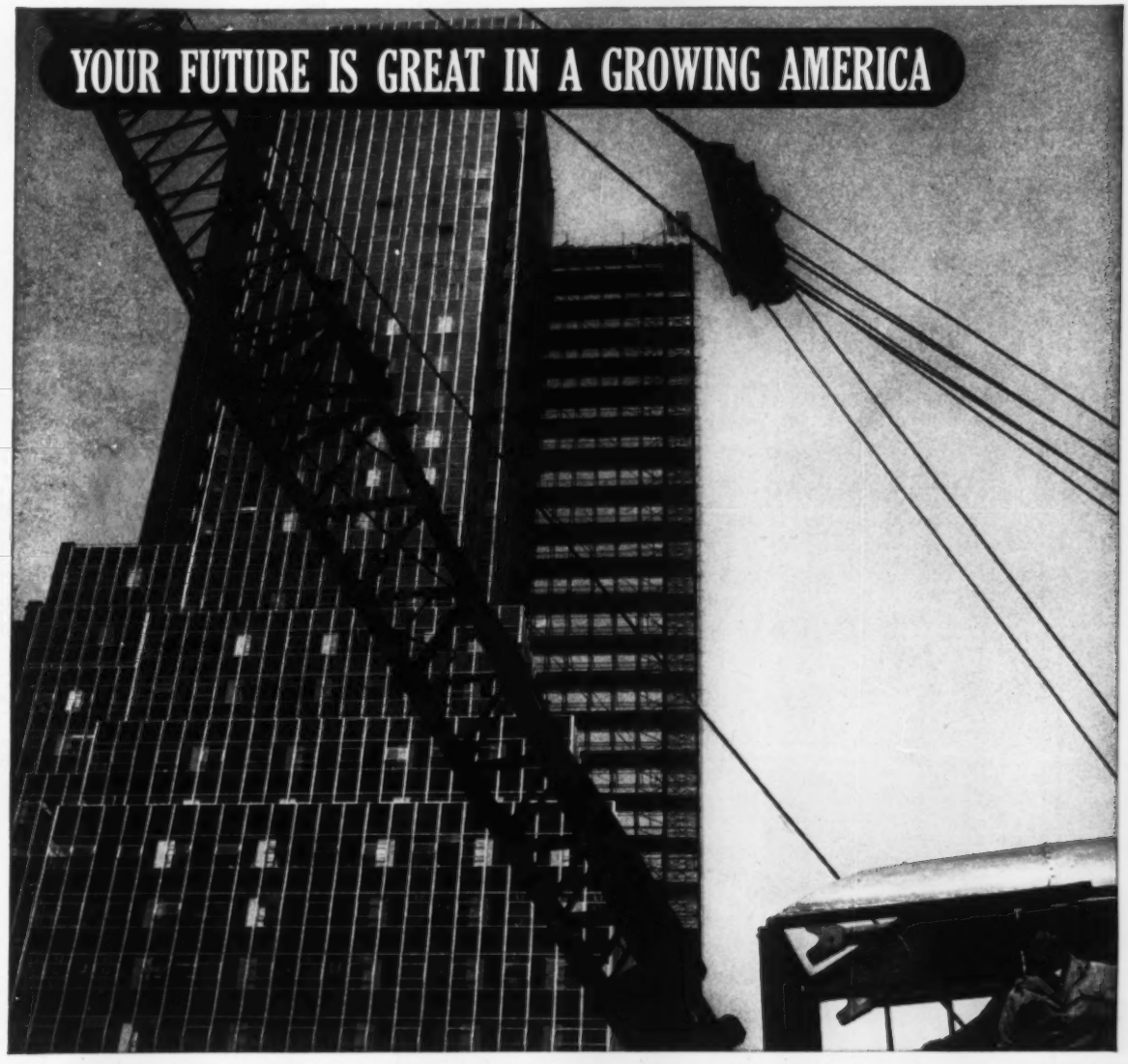
HAMILTON, ONT.

No. 1 heavy melting	30.00
No. 2 heavy melting	26.00
No. 1 bundles	30.00
No. 2 bundles	23.00
Mixed steel scrap	25.00
Mixed borings, turnings	15.00
Busheling, new factory:	
Prepared	30.00
Unprepared	24.00
Short steel turnings	19.00

Cast Iron Grades‡

No. 1 machinery cast	45.00-50.00

*Brokers' buying price.
†Nominal.
‡F.o.b. Hamilton, Ont.



AMERICA ALWAYS OUTPERFORMS ITS PROMISES

We grow so fast our goals are exceeded soon after they are set!

7 BIG REASONS FOR CONFIDENCE IN AMERICA'S FUTURE

1. More People—Four million babies yearly. U. S. population has *doubled* in last 50 years! And our prosperity curve has always followed our population curve.

2. More Jobs—Though employment in some areas has fallen off, there are 15 million more jobs than in 1939—and there will be *22 million more* in 1975 than today.

3. More Income—Family income after taxes is at an all-time high of $5300—is expected to pass $7000 by 1975.

4. More Production—U.S. production *doubles* every 20 years. We will require millions more people to make, sell and distribute our products.

5. More Savings—Individual savings are at highest level ever—*$340 billion*—a record amount available for spending.

6. More Research—*$10 billion* spent each year will pay off in more jobs, better living, whole new industries.

7. More Needs—In the next few years we will need more than *$500 billion* worth of schools, highways, homes, durable equipment. Meeting these needs will create new opportunities for everyone.

Add them up and you have the makings of another big upswing. Wise planners, builders and buyers will act *now* to get ready for it.

FREE! Send for this new 24-page illustrated booklet, "Your Great Future in a Growing America." Every American should know these facts. Drop a post card today to: THE ADVERTISING COUNCIL, Box 10, Midtown Station, New York 18, N. Y.

Aluminum Price Upped

Adjustment calls for an increase of 0.7 cent a pound in pig, plus equivalent advances in mill products. Copper market is showing more signs of strength

Nonferrous Metal Prices, Pages 122 & 123

ALUMINUM producers boosted their prices on Aug. 1 to recoup some of the added labor costs that went into effect on that date. Pig now sells for 24.7 cents a pound, an increase of 0.7 cent. Prices on mill products are being revised correspondingly.

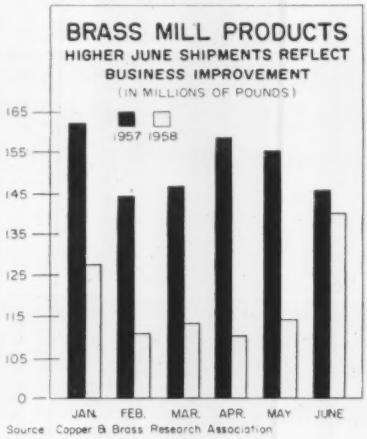
Chronology—Aluminum Co. of America initiated the action. It was followed quickly by the other producers. Especially significant was Aluminium Ltd.'s rapid announcement that it would meet the higher price. It's doubtful whether domestic producers could have maintained the new quotation in the face of opposition from Aluminium.

Why—Producers had hinted for several weeks that they would like to adjust quotations because of labor contracts calling for a package increase of 19 cents an hour on Aug. 1. They also had granted workers a 5 cent an hour, cost of living adjustment on Feb. 1, making labor costs 24 cents an hour higher.

Unanswered—The increase comes as no surprise because prices were about 8 per cent under the year-ago mark. (Pig was cut to 24 cents a pound on Apr. 1.) The amount of increase was a surprise. Producers offer no explanation, but observers point out that the 0.7-cent markup about matches the percentage increase steel put through. (Producers earlier had admitted they wouldn't be able to make an adjustment until steel made its move.) Another possible explanation is that domestic companies were afraid Aluminium might not go along with a stiffer hike.

More To Come?—Don't discount the possibility of another increase before next summer. Official statements leave the door wide open. Alcoa emphasized the price increase will restore "only part of last spring's reduction." Reynolds Metals Co. goes a step farther and calls the boost "inadequate" while pointing out that prices must be high enough so new markets and new products can be developed.

Future action hinges largely on how business improves. One indication it's on the upswing: Kaiser Aluminum & Chemical Corp. has reactivated 49,500 tons of idle primary capacity.



Source: Copper & Brass Research Association

Copper: Market Firmer

Copper continues to show sporadic signs of strength. Custom smelters on Aug. 1 kicked their price up to 27 cents a pound, 0.5 cent over the primary producers. This was the highest their price had been since last September and was 4 cents a pound over the figure quoted in March. However, on Aug. 6 a leading custom smelter initiated a move back to 26.50 cents.

Three probable reasons for the cut: 1. Fear that the Minerals Bill won't be passed in this session of Congress. 2. A small dropoff in London Metal Exchange quotation. 3. A little less activity on the commodity exchange.

Improvement—Primary producers say their sales are better domestically and remain "good" overseas. Kennecott Copper Corp. is stepping up production at its western mines from a four to a five day week, upping the company's operating rate to around 83 per cent of capacity.

Look for primary producers to hold at 26.5 cents a pound for the present. Acceptance of the copper stockpile program by Congress is the only forseeable event that could trigger a boost.

Other plus signs in the market: 1. Katanga copper is selling at 26.3 cents per pound. 2. The French agency (GIRM) has hiked its price to 27.08 cents.

Brass Mills—They've had some improvement in buying since the first quarter, especially from the construction industry. June was by far the best month of the year (see chart). July wasn't too good because most mills shut down for two-week vacations.

Competition is still severe. Mills lowered their price on free cutting rods 1 cent a pound on July 1 and increased the discount for purchases of 10,000 lb or more from 1 to 2 cents a pound.

NONFERROUS PRICE RECORD

	Price Aug. 6	Last Change	Previous Price	July Avg	June Avg	Aug., 1957 Avg
Aluminum	24.70	Aug. 1, 1958	24.00	24.000	24.000	28.100
Copper	27.00	Aug. 6, 1958	26.50	26.125	25.400	28.639
Lead	10.80	July 1, 1958	11.30	10.800	11.040	13.800
Magnesium	35.25	Aug. 13, 1956	33.75	35.250	35.250	35.250
Nickel	74.00	Dec. 6, 1956	64.50	74.000	74.000	74.000
Tin	96.25	Aug. 6, 1958	96.00	94.950	94.701	94.259
Zinc	10.00	July 1, 1957	10.50	10.000	10.000	10.000

Quotations in cents per pound based on: COPPER, mean of primary and secondary, deld. Conn. Valley; LEAD, common grade, deld. St. Louis; ZINC, prime western, E. St. Louis; TIN, Straits, deld. New York; NICKEL, electrolytic cathodes, 99.9%, base size at refinery, unpacked; ALUMINUM, primary pig, 99.5+%, f.o.b. shipping point; MAGNESIUM, pig, 99.8%, Velasco, Tex.

WELDING CLINIC

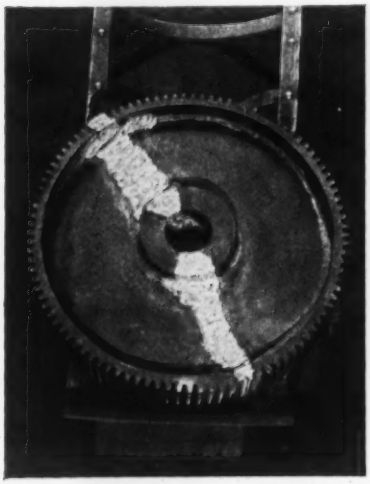
J. Imperati and R. F. Pulver, Welding Engineers
The American Brass Company, Waterbury, Conn.

Braze Welding repairs saved this cast iron gear—and 2 to 4 weeks' production time

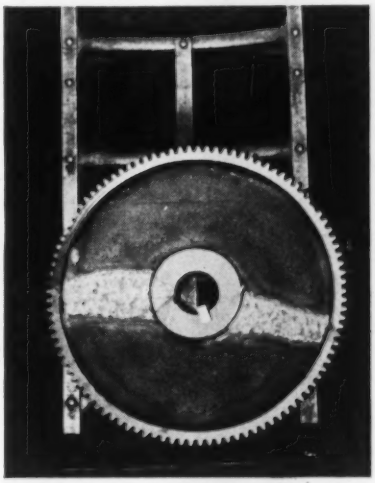
1. When a key came out and fell in the motor pinion of a big sheet mill flattener, this cast iron gear broke in half. Delivery on a new gear was 3 to 5 weeks. Braze welding repairs could return the machine to production in about a week.

2. To save production time, it was decided to repair by braze welding. The 30″ diameter gear with a 3″ gear face and 1″ thick solid web was prepared by chipping and grinding bevels on edges of the fracture from both sides. This took 11 man-hours.

3. The gear was preheated to 800 F with an oxypropane torch. Then the fracture was braze welded, and the damaged gear face built up to full diameter with Anaconda-997 (Low Fuming) Bronze Welding Rod. Total welding time, 14 man-hours.



4. After a period of slow cooling, the welded gear was ready for a trip to the mill's machine shop. Here it was trued up and new teeth were cut in the built-up bronze weld metal. This phase of the repair required only 15 man-hours.



5. The repaired gear on its way back to the sheet mill flattener in less than a week. The machine was reassembled and back in production in just one week for a total saving of two to four weeks of valuable production time.

Oxyacetylene braze welding with Anaconda-997 (Low Fuming) Bronze and Tobin Bronze®-481 Welding Rods is widely recognized as the easiest and least expensive repair method for cast iron. For full details, write for a copy of Publication B-13.

Free Technical Service. Anaconda distributors can help you select rod for most jobs. But if you have a special problem, American Brass Company specialists will be glad to help you. For this service—or a copy of the book—write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont. 5899 Rev.

ANACONDA®
WELDING RODS
made by
The American Brass Company

Nonferrous Metals

Cents per pound, carlots except as otherwise noted.

PRIMARY METALS AND ALLOYS

Aluminum: 99.5%, pigs, 24.70; ingots, 26.80, 30,000 lb or more, f.o.b. shipping point. Freight allowed on 500 lb or more.

Aluminum Alloy: No. 13, 28.60; No. 43, 28.40; No. 195, 29.40; No. 214, 30.20; No. 356, 28.60, 30-lb ingots.

Antimony: R.M.M. brand, 99.5%, 29.00; Lone Star brand, 29.50; f.o.b. Laredo, Tex., in bulk. Foreign brands, 99.5%, 23.50-24.50, New York, duty paid, 10,000 lb or more.

Beryllium: 97% lump or beads, $71.50 per lb, f.o.b. Cleveland or Reading, Pa.

Beryllium Aluminum: 5% Be, $74.75 per lb of contained Be, with balance as Al at market price, f.o.b. shipping point.

Beryllium Copper: 3.75-4.25% Be, $43 per lb of contained Be, with balance as Cu at market price on shipment date, f.o.b. shipping point.

Bismuth: $2.25 per ton, ton lots.

Cadmium: Sticks and bars, $1.55 per lb deld.

Cobalt: 97.99%, $2.00 per lb for 550-lb keg; $2.02 per lb for 100 lb case; $2.07 per lb under 100 lb.

Columbium: Powder, $55-85 per lb, nom.

Copper: Electrolytic, 26.50 deld.; custom smelters, 27.00; lake, 26.50 deld.; fire refined, 26.25 deld.

Germanium: First reduction, $179.17-197.31 per lb; intrinsic grade, $197.31-220 per lb, depending on quantity.

Gold: U. S. Treasury, $35 per oz.

Indium: 99.9%, $2.25 per troy oz.

Iridium: $70-80 nom. per troy oz.

Lead: Common, 10.80; chemical, 10.90; corroding, 10.90, St. Louis. New York basis, add 0.20.

Lithium: 98 + %, 50-100 lb, cups or ingots, $12; rod, $15; shot or wire, $16. 100-500 lb, cups or ingots, $10.50; rod, $14; shot or wire, $15, f.o.b. Minneapolis.

Magnesium: Pig, 35.25; ingot, 36.00 f.o.b. Velasco, Tex.; 12 in. thick, 59.00 f.o.b. Madison, Ill.

Magnesium Alloys: AZ91A (diecasting), 40.75 deld., AZ63A, AZ92A, AZ91C (sand casting), 40.75, f.o.b. Velasco, Tex.

Mercury: Open market, spot, New York, $233-237 per 76-lb flask.

Molybdenum: Unalloyed turned extrusions, 3.75-5.75 in. round, $9.60 per lb in lots of 2500 lb or more, f.o.b. Detroit.

Nickel: Electrolytic cathodes, sheets (4 x 4 in. and larger), unpacked, 74.00; 10-lb pigs, unpacked, 78.25; "XX" nickel shot, 79.50; "F" nickel shot for addition to cast iron, 74.50; "F" nickel, 5 lb ingots in kegs for addition to cast iron, 75.50. Prices f.o.b. Port Colborne, Ont., including import duty. New York basis, add 1.01. Nickel oxide sinter at Buffalo, New York, or other established U. S. points of entry, contained nickel, 69.60.

Osmium: $70-100 per troy oz nom.

Palladium: $15-19 per troy oz.

Platinum: $62-65 per troy oz from refineries.

Radium: $16-21.50 per mg radium content, depending on quantity.

Rhodium: $118-125 per troy oz.

Ruthenium: $45-55 per troy oz.

Selenium: $7.00 per lb, commercial grade.

Silver: Open market 88.625 per troy oz.

Sodium: 17.00 c.l.; 19.00-19.50 l.c.l.

Tantalum: Rod, $60 per lb; sheet, $55 per lb.

Tellurium: $1.65-1.85 per lb.

Thallium: $7.50 per lb.

Tin: Straits, N. Y., spot and prompt, 95.75.

Titanium: Sponge, 99.3 + % grade A-1, ductile (0.3% Fe max.), 2.05; grade A-2 (0.5% Fe max.), $1.85 per lb.

Tungsten: Powder, 98.8%, carbon reduced, 1000-lb lots, $3.15 per lb nom., f.o.b. shipping point; less than 1000 lb, add 15.00; 99 + % hydrogen reduced, $3.30-3.85.

Zinc: Prime Western, 10.00; brass special, 10.25; intermediate, 10.50, East St. Louis, freight allowed over 0.50 per lb. New York basis, add 0.50. High grade, 11.00; special high grade, 11.25 deld. Diecasting alloy ingot No. 3, 12.25; No. 2, 12.75; No. 5, 12.50 deld.

Zirconium: Sponge, commercial grade, $5-10 per lb.

(Note: Chromium, manganese, and silicon metals are listed in ferroalloy section.)

SECONDARY METALS AND ALLOYS

Aluminum Ingot: Piston alloys, 23.00-25.25; No. 12 foundry alloy (No. 2 grade), 21.75; 5% silicon alloy, 0.60 Cu max., 24.75; 13 alloy 0.60 Cu max., 24.75; 195 alloy, 24.75-26.00; 108 alloy, 22.25. Steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 23.00; grade 2, 21.75; grade 3, 20.50; grade 4, 17.75.

Brass Ingot: Red brass, No. 115, 27.00; tin bronze, No. 225, 36.00; No. 245, 30.75; high-leaded tin bronze, No. 305, 31.25; No. 1 yellow, No. 405, 22.75; manganese bronze, No. 421, 24.50.

Magnesium Alloy Ingot: AZ63A, 37.50; AZ91B, 37.50; AZ91C, 41.25; AZ92A, 37.50.

NONFERROUS PRODUCTS

BERYLLIUM COPPER

(Base prices per lb, plus mill extras, 2000 to 5000 lb; nom. 1.9% Be alloy.) Strip, $1.80, f.o.b. Temple, Pa., or Reading, Pa.; rod, bar, wire, $1.78, f.o.b. Temple, Pa.

COPPER WIRE

Bare, soft, f.o.b. eastern mills, 20,000-lb lots, 31.855; l.c.l., 32.48. Weatherproof, 20,000-lb lots, 33.66, l.c.l., 34.41, before quantity discounts.

LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh.) Sheets, full rolls, 140 sq ft or more, $15.50 per cwt; pipe full coils, $15.50 per cwt; traps and bends, list prices plus 30%.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill.) Sheets and strip, $8.50-15.95; sheared mill plate, $6.00-9.50; wire, $6.50-11.00; forging billets, $4.10-4.35; hot-rolled and forged bars, $5.25-6.35.

ZINC

(Prices per lb. c.l., f.o.b. mill.) Sheets, 24.00; ribbon zinc in coils, 20.50; plates, 19.00.

ZIRCONIUM

Plate, $12.50-19.20; H.R. strip, $12.50-22.90; C.R. strip $15.90-31.25; forged or H.R. bars, $11.00-17.40.

NICKEL, MONEL, INCONEL

	"A" Nickel	Monel	Inconel
Sheets, C.R.	126	106	128
Strips, C.R.	124	108	138
Plate, H.R.	120	105	121
Rod, Shapes, H.R.	107	89	109
Seamless Tubes	157	129	200

ALUMINUM

Sheets: 1100, 3003, and 5005 mill finish (30,000 lb base; freight allowed).

Thickness Range, Inches	Flat Sheet	Coiled Sheet
0.249-0.136	41.10-45.60	.....
0.135-0.096	41.60-46.70	.....
0.125-0.096	.....	38.50-39.10
0.096-0.077	42.30-48.50	38.60-39.30
0.076-0.061	42.90-50.80	38.80-40.00
0.060-0.048	43.60-53.10	39.40-41.10
0.047-0.038	44.20-55.90	39.90-32.50
0.037-0.030	44.60-60.90	40.30-44.30
0.029-0.024	45.20-52.70	40.60-45.00
0.023-0.019	46.20-56.10	41.70-43.40
0.018-0.017	47.00-53.40	42.30-44.00
0.016-0.015	47.90-54.30	43.10-44.80
0.014	48.90	44.10-45.80
0.013-0.012	50.10	44.80
0.011	51.10	46.00
0.010-0.0095	52.60	47.40
0.009-0.0085	53.90	48.90
0.008-0.0075	55.50	50.10
0.007	57.00	51.60
0.006	58.60	53.00

ALUMINUM (continued)

Plates and Circles: Thickness 0.250-3 in., 24-60 in. width or diam., 72-240 in. lengths.

Alloy	Plate Base	Circle Base
*100-F, 3003-F	41.70	46.50
5050-F	42.80	47.60
3004-F	43.80	49.50
5052-F	44.40	50.20
6061-T6	44.90	51.00
2024-T4	48.60	55.40
7075-T6*	56.40	64.00

*24-48 in. width or diam., 72-180 in. lengths.

Screw Machine Stock: 30,000 lb base.

Diam. (in.) or across flats	Round 2011-T3	Round 2017-T4	Hexagonal 2011-T3	Hexagonal 2017-T4
Drawn				
0.125	76.20	73.20	....	....
0.156	64.20	61.40	....	....
0.172	....	61.40	....	....
0.188	64.20	61.40	....	79.60
0.203	64.20	61.40	....	....
0.219-0.234	61.00	59.50	....	....
0.250	61.00	59.50	88.40	75.90
0.266-0.281	61.00	59.50	....	....
0.313	61.00	59.50	81.40	72.20
0.344	60.50	....	81.40	....
Cold-Finished				
0.375-0.547	60.50	59.30	72.80	67.80
0.563-0.688	60.50	59.30	69.10	63.50
0.719	....	57.70	....	....
0.750-1.000	59.00	57.70	62.90	59.70
1.063	59.00	57.70	....	57.60
1.250-1.500	56.60	55.40	60.80	57.60
Rolled				
1.563	55.00	53.70	....	....
1.625-2.000	54.30	52.90	59.60	55.50
2.063	....	51.40	....	....
2.125-2.500	52.80	51.40	....	55.50
2.500-3.000	51.20	49.70	....	55.50
3.250-3.375	....	49.70	....	....

Forging Stock: Round, Class 1, random lengths, diam. 0.688-8 in., "F" temper; 2014, 41.50-54.30; 6061, 40.90-54.30; 7075, 42.90-56.30; 7070, 43.40-56.80.

Pipe: ASA schedule 40, alloy 6063-T6, standard lengths, plain ends, 90,000 lb base, dollars per 100 ft. Nominal pipe sizes: ¾ in., 18.60; 1 in., 29.35; 1¼ in., 39.75; 1½ in., 47.50; 2 in., 57.40; 4 in., 157.60; 6 in., 282.95; 8 in., 425.80.

Extruded Solid Shapes:

Factor	Alloy 6063-T5	Alloy 6062-T6
9-11	42.00-43.50	58.60-62.80
12-14	42.00-43.50	59.30-63.80
15-17	42.00-43.50	60.50-65.50
18-20	42.50-44.00	62.50-68.10

MAGNESIUM

Sheet and Plate: AZ31B standard grade, 0.32 in., 103.10; .081 in., 77.90; .125 in., 70.40; .188 in., 69.00; .250-2.0 in., 67.90. AZ31B spec. grades, .032 in., 171.30; .081 in., 108.70; .125 in., 98.10; .188 in., 95.70; .250-2.00 in., 93.30. Tread plate, 60-192 in. lengths, 24-72 in. widths; .125 in., 74.90; .188 in., 71.70-72.70; .25-.75 in., 70-60-71.60. Tooling plate, .25-3.0 in., 73.00.

Extruded Solid Shapes:

Factor	Com. Grade (AZ31C)	Spec. Grade (AZ31B)
6-8	69.60-72.40	84.60-87.40
12-14	70.70-73.00	85.70-88.00
24-26	75.60-76.30	90.60-91.30
36-38	89.20-90.30	104.20-105.30

NONFERROUS SCRAP

DEALER'S BUYING PRICES

(Cents per pound, New York, in ton lots.)

Copper and Brass: No. 1 heavy copper and wire, 20.00-20.50; No. 2 heavy copper and wire, 18.25-18.75; light copper, 16.25-16.75; No. 1 composition red brass, 16.50-17.00; No. 1 com-

BRASS MILL PRICES

	MILL PRODUCTS a				SCRAP ALLOWANCES e (Based on copper at 26.50c)		
	Sheet, Strip, Plate	Rod	Wire	Seamless Tubes	Clean Heavy	Rod Ends	Clean Turnings
Copper	49.63b	46.86c	....	49.82	22.500	22.500	21.750
Yellow Brass	43.57	29.28d	44.11	46.48	17.000	16.750	15.250
Low brass, 80%	46.03	45.97	46.57	48.84	19.000	18.750	18.250
Red Brass, 85%	46.89	46.83	47.43	49.70	19.750	19.500	19.000
Com. Bronze, 90%	48.30	48.24	48.84	50.86	20.625	20.375	19.875
Manganese Bronze	51.52	45.74	56.18	....	15.625	15.375	14.875
Muntz Metal	45.95	41.76	....	....	15.875	15.625	15.125
Naval Brass	47.83	42.14	54.89	50.99	15.625	15.375	14.875
Silicon Bronze	54.37	53.56	54.41	56.29	22.125	21.875	21.125
Nickel Silver, 10%	58.82	61.15	61.15	....	22.000	21.750	11.000
Phos. Bronze, A-5%	68.59	69.09	69.09	70.27	23.375	23.125	22.125

a. Cents per lb, f.o.b. mill; freight allowed on 500 lb or more. b. Hot-rolled. c. Cold-drawn. d. Free cutting. e. Prices in cents per lb for less than 20,000 lb, f.o.b. shipping point. On lots over 20,000 lb at one time, of any or all kinds of scrap, add 1 cent per lb.

positions turnings, 15.50-16.00; new brass clippings, 14.00-14.50; light brass, 9.75-10.25; heavy yellow brass, 11.50-12.00; new brass rod ends, 12.00-12.50; auto radiators, unsweated, 13.50-14.00; cocks and faucets, 13.50-14.00; brass pipe, 13.50-14.00.

Lead: Heavy, 6.75-7.00; battery plates, 2.50-2.75; linotype and stereotype, 9.25-9.75; electrotype, 7.50-8.00; mixed babbitt, 9.00-9.50.

Monel: Clippings, 28.00-29.00; old sheets, 25.00-26.00; turnings, 20.00-23.00; rods, 28.00-29.00.

Nickel: Sheets and clips, 42.00-45.00; rolled anodes, 42.00-45.00; turnings, 37.00-40.00; rod ends, 42.00-45.00.

Zinc: Old zinc, 3.00-3.25; new diecast scrap, 2.75-3.00; old diecast scrap, 1.50-1.75.

Aluminum: Old castings and sheets, 9.25-10.00; clean borings and turnings, 6.00-6.50; segregated low copper clips, 16.50-17.00; segregated high copper clips, 15.00-15.50; mixed low copper clips, 12.25-13.25; mixed high copper clips, 14.50-15.00.

(Cents per pound, Chicago)

Aluminum: Old castings and sheets, 10.50-11.00; clean borings and turnings, 9.50-10.00; segregated low copper clips, 16.00-16.50; segregated high copper clips, 14.50-15.00; mixed low copper clips, 15.00-15.50; mixed high copper clips, 14.00-14.50.

(Cents per pound, Cleveland)

Aluminum: Old castings and sheets, 9.25-10.00; clean borings and turnings, 8.50-9.00; segregated low copper clips, 13.50-14.00; segregated high copper clips, 12.00-12.50; mixed low copper clips, 12.00-12.50; mixed high copper clips, 11.00-11.50.

REFINERS' BUYING PRICES

(Cents per pound, carlots, delivered refinery)

Beryllium Copper: Heavy scrap, 0.020-in. and heavier, not less than 1.5 % Be, 52.50; light scrap, 47.50; turnings and borings, 32.50.

Copper and Brass: No. 1 heavy copper and wire, 22.50; No. 2 heavy copper and wire, 21.50; light copper, 19.25; refinery brass (60% copper) per dry copper content, 21.00.

INGOTMAKERS' BUYING PRICES

Copper and Brass: No. 1 heavy copper and wire, 22.50; No. 2 heavy copper and wire, 21.50; light copper, 19.25; No. 1 composition borings, 19.00; No. 1 composition solids, 19.50; heavy yellow brass solids, 13.50; yellow brass turnings, 12.50; radiators, 15.50.

PLATING MATERIALS

(F.o.b. shipping point, freight allowed on quantities)

ANODES

Cadmium: Special or patented shapes, $1.55.

Copper: Flat-rolled, 43.29; oval, 41.50, 5000-10,000 lb; electrodeposited, 35.25, 2000-5000 lb lots; cast, 37.75, 5000-10,000 lb quantities.

Nickel: Depolarized, less than 100 lb, 114.25; 100-499 lb, 112.00; 500-4999 lb, 107.50; 5000-29,999 lb, 105.25; 30,000 lb, 103.00. Carbonized, deduct 3 cents a lb.

Tin: Bar or slab, less than 200 lb, 114.50; 200-499 lb, 113.00; 500-999 lb, 112.50; 1000 lb or more, 112.00.

Zinc: Balls, 16.00; flat tops, 16.00; flats, 19.25; ovals, 18.50, ton lots.

CHEMICALS

Cadmium Oxide: $1.55 per lb in 100-lb drums.

Chromic Acid (flake): 100-2000 lb, 31.00; 2000-10,000 lb, 30.50; 10,000-20,000 lb, 30.00; 20,000 lb or more, 29.50.

Copper Cyanide: 100-200 lb, 65.90; 300-900 lb, 63.90; 1000-19,900 lb, 61.90.

Copper Sulphate: 100-1900 lb, 14.05; 2000-5900 lb, 12.05; 6000-11,900 lb, 11.80; 12,000-22,900 lb, 11.55; 23,000 lb or more, 11.05.

Nickel Chloride: 100 lb, 48.50; 200 lb, 46.50; 300 lb, 45.50; 400-999 lb, 43.50; 10,000 lb or more, 40.50.

Nickel Sulphate: 5000-22,000 lb, 29.00; 23,000-35,900 lb, 28.50; 36,000 lb or more, 28.00.

Sodium Cyanide (Cyanobrik): 200 lb, 20.80; 400-800 lb, 19.80; 1000-19,800 lb, 18.80; 20,000 lb or more, 17.80.

Sodium Stannate: Less than 100 lb, 76.30; 100-600 lb, 67.20; 700-1900 lb, 64.50; 2000-9900 lb, 62.60; 10,000 lb or more, 61.30.

Stannous Chloride (anhydrous): 25 lb, 100.514; 100 lb, 100.465; 400 lb, 100.440; 800-19,900 lb, 100.032; 20,000 lb or more, 97.10.

Stannous Sulphate: Less than 50 lb, 100.367; 50 lb, 100.067; 100-1900 lb, 100.047; 2000 lb or more, 100.027.

Zinc Cyanide: 100-200 lb, 59.00; 300-900 lb, 57.00.

(Concluded from Page 117)

furnace and railroad grades also are higher.

The sharp boost in prices is attributed to mounting steel production and strength at other market centers. Supplies in this area are relatively tight, and this has a strong bearing on prices.

Cincinnati—District mills entered the scrap market last week; their purchases sent prices on the principal steelmaking grades up $2.50 a ton. No. 1 heavy melting is quoted at $38.50-$39.50 by dealers. Buying is concentrated in the principal grades, and the market may see a backpedal on secondary grade prices. Turnings, for example, moved up $5 a ton, but buying is slim. Rising steel operations are contributing to market strength.

St. Louis—Local steel mills want more scrap, but dealers are holding back their supplies on a rising market. Within the last week prices went up $1 to $4 a ton. No. 1 heavy melting, No. 2 heavy melting, and No. 2 bundles advanced $4; No. 1 bundles, $3. Rerolling rails are $60 a ton.

In a recent deal, a Kansas City mill's purchase boosted prices there $5 a ton. As a result, St. Louis scrap brokers are blocked from reaching into that territory for supplies.

Birmingham—Although the scrap market here has not moved along with the rest of the country, prices of most grades are advancing. A large Birmingham electric furnace raised its prices for electric furnace grades $3 a ton. Cast iron went up $1 in Birmingham and $2 in Anniston.

Believing that strength in the electric furnace grades and buying by northern mills will be factors when next purchases of open hearth grades are made, brokers and dealers are quoting $2 a ton higher on those grades than was paid recently by an Alabama mill.

Houston—Bullishness is giving the southwest scrap market a strong appearance. Most dealers and brokers expect mill buying support to develop. The leading mill, though, is standing by its offer to buy some scrap at the July prices, but it seems unlikely that much material will come out at that level. The second Texas mill says it will not return to the market this month.

Exporters have no firm plans to load scrap under the new European buying program from Gulf ports. One cargo for Spain, already accumulated, will be shipped from Baton Rouge and Beaumont. Buyers for Mexican mills are sitting

WANTED — ONE USED NATIONAL
5/8" TRACK SPIKE MACHINE
Reply Box 681, STEEL — Penton Bldg., Cleveland 13, Ohio

LATE UNUSUAL MACHINES EQUAL TO NEW IMMEDIATE DELIVERY

6150B BLISS Hi-Speed Press 200 Ton, 3" Stroke	1948
350 Ton BRANDES Hi-Speed Press	1954
12000# CHAMBERSBURG Steam Drop Hammer, Model E	
36 x 36 x 10 CLEVELAND Openside Planer, tool lifters	1943
340T G & L 4" Table Type Mill Oversize 60" V.T., Rebuilt	1947
3" Ajax Air Clutch Upsetters	1947

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RAIL
& ALL TRACK EQUIPMENT
Nation's Largest Warehouse Stocks
L. B. FOSTER CO.
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CHICAGO 4 • HOUSTON 2 • LOS ANGELES 5

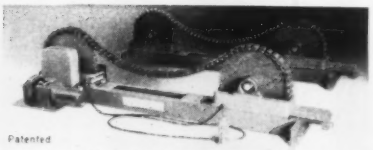
CLASSIFIED

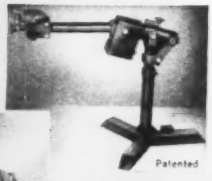
Positions Wanted

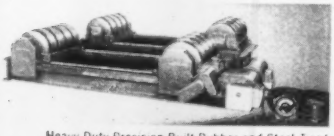
STRUCTURAL STEEL FABRICATOR experience shop, production, heavy structural, construction, and chemical equipment. Available immediately. Reply Box 682, STEEL, Penton Bldg., Cleveland 13, Ohio.

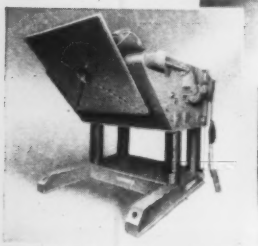
MACHINE TOOL SALESMEN and REPRESENTATIVES WANTED
Excellent opp'ty to represent leading mach'y firm in your area with full established line of NEW equipment (and/or used.). Only apply if you have top sales record. Send all details first letter. Correspondence confidential. Write: L. D. Srybnik, S & S Machinery Co., 140—53rd St., Brooklyn 32, N. Y.

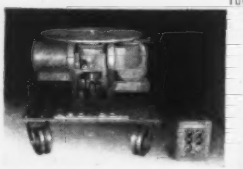
ARONSON
Offers You Over 200 PROVEN
Standard Stock Models
of Quality POSITIONERS
"POSITIONEERED"
to your exact Requirements

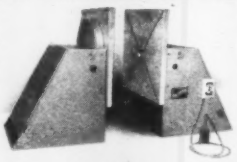

Patented
Aronson TracTred (T. M. Reg.) Turning Rolls for thin walled heavy cylindrical work to 27 tons capacity. Zero to 100 IPM turning speed and Built-In Grounding.

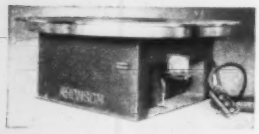

Aronson Universal Balance Positioners (T. M. Reg.) position your weldments effectively, instantly for downhand welding. Capacities to 2000 lbs.
Patented

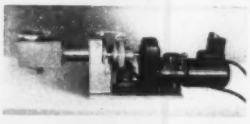

Heavy Duty Precision Built Rubber and Steel Tired Turning and Pipe Rolls. 100% overload protected. Capacities to 600 Tons.


Fully Automatic Gear Driven Positioners, featuring Geared Elevation, 135° Tilting and Variable or Constant Speed Rotation. Capacities to 350,000 lbs.


Model D Gear Driven Positioners. Compact, Precise, Rugged. Capacities to 1000 lbs.


Rugged Head and Tail Stock for positioning bulky weldments between centers. Table Backup for Zero Deflection. Magnetic Braking. Capacities to 160,000 lbs. Geared Elevation Optional.


Heavy Duty Floor Turntables with precision speed control and Magnetic Braking, used for welding, burning, X-raying, etc. Capacities to 120,000 lbs., various heights and speeds.


Bench Turntable Automatic Positioners with Mercury Grounding. Capacities to 500 lbs.

Quality POSITIONERS by Aronson MACHINE COMPANY
ARCADE, NEW YORK

PUNCHES · DIES · RIVET SETS
COMPRESSION RIVETER DIES

Made to highest standard and uniform quality thus insuring maximum service.

Since 1903

Rivet sets—round, square, oblong Punches, and Dies carried in stock.

Write Dept. A for catalog 54 and new stock list.

GEO. F. MARCHANT COMPANY
1420-34 So. ROCKWELL STREET · CHICAGO 8, ILLINOIS

tight, and no deals for Texas scrap have been made for August delivery.

San Francisco — Mill inventories of steel scrap are plentiful. There appears to be little likelihood that prices will be raised in the immediate future.

Seattle—Strength in the eastern scrap markets is not being reflected in this area. Improved demand is expected later this month, but prices are nominal.

Los Angeles — Scrap prices are holding in this market, and no revision is in immediate prospect. Lack of mill buying has dulled trading, and export business at northern points has not reached here.

Pig Iron . . .

Pig Iron Prices, Page 112

Demand for pig iron is picking up slowly as casting shops return to production following vacation shutdowns. Most merchant iron sellers anticipate a gain in order volume this month compared with that in July, but they look for no solid improvement in demand before early fall.

Wickwire Spencer Div., Colorado Fuel & Iron Corp., Buffalo, last week announced it will put a second blast furnace into production this week. The company reports an upturn in demand for merchant iron, particularly from foundries serving the auto industry.

Wickwire hopes to have its two blast furnaces in operation for about a month. Then it will shut down one unit for relining.

Other steelmakers are planning to add to blast furnace operations. Last week, U. S. Steel said it was restoring its National Tube Div. No. 3 stack to production. This furnace, at McKeesport, Pa., has been down since September, 1957.

Iron Ore . . .

Iron Ore Prices, Page 113

The movement of iron ore down the Great Lakes in July continued at a rate below last year's, reflecting slower steel production and large stocks at docks and furnaces.

July shipments totaled 9,589,436 gross tons. That's a drop of 32.5 per cent from the 14,211,819 shipped in the like month of 1957.

Through July, shipments total 21,753,390 tons, off more than 50 per cent from the 44,523,468 reported in the like period last year.

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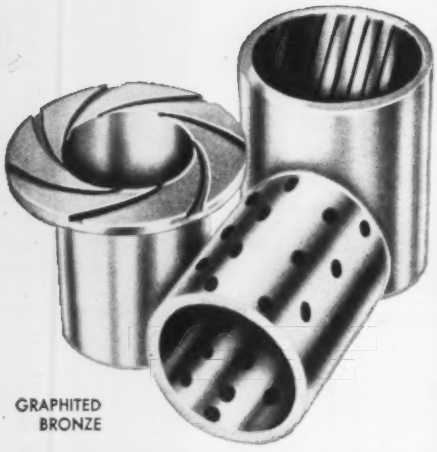
Cancer can't strike me, I'm hiding.

What I don't know won't hurt me.

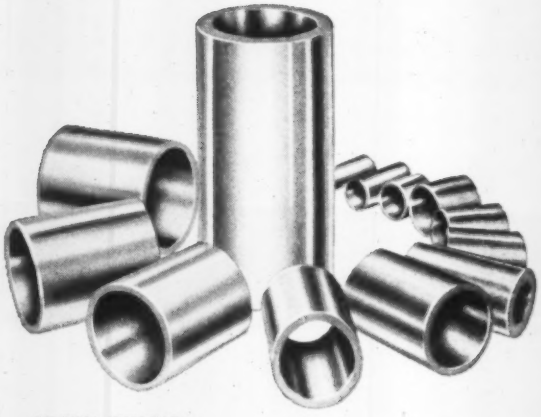
Cancer?

Lots of people die of it, I know . . . but the American Cancer Society says a great many deaths from cancer are NEEDLESS deaths. That's why I do what they tell me. I have an annual medical checkup however well I feel. I know the seven danger signals. And when I want sound information, I get it from my Unit of the

AMERICAN CANCER SOCIETY



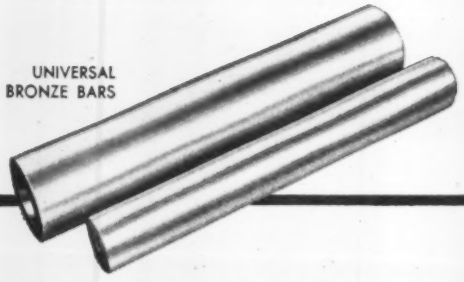
GRAPHITED BRONZE



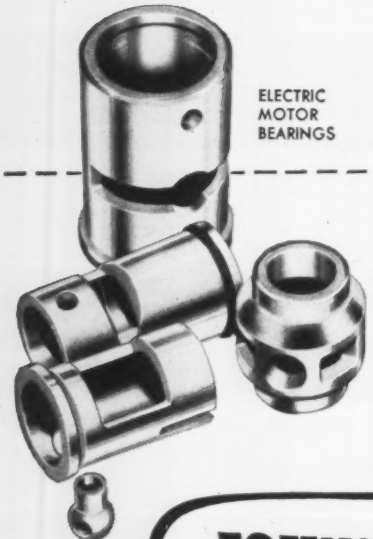
GENERAL PURPOSE

LEDALOYL SELF-LUBRICATING

UNIVERSAL BRONZE BARS



ELECTRIC MOTOR BEARINGS



Over 2300 types and sizes of bearings and bars in stock

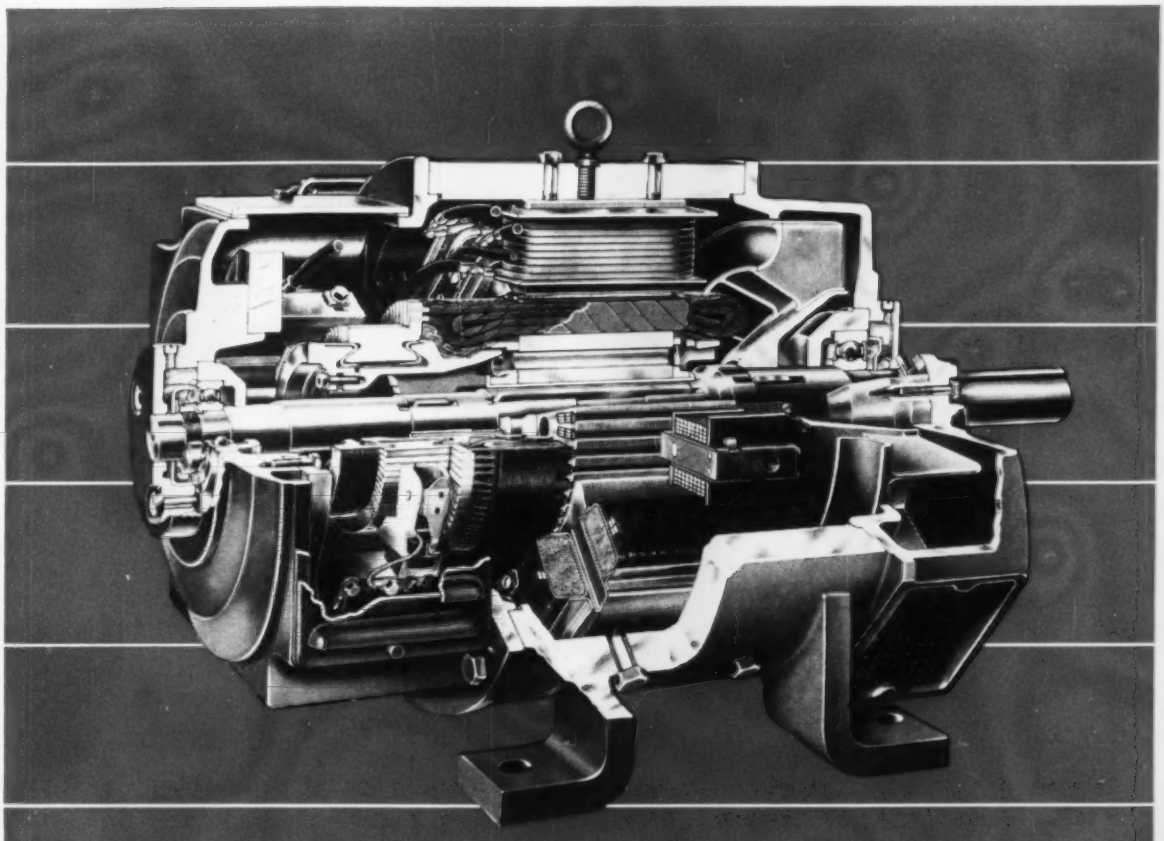
Johnson Bronze can supply over 1900 sizes and types of sleeve bearings, and over 400 sizes of bronze bars from stock. This includes standard stock GP bearings, graphited bearings, Ledaloyl self-lubricating bearings, and electric motor bearings made to motor specifications. You can select an economical standard bearing for almost any application from this large stock. For complete details on how Johnson Bronze stock bearings can save you money, contact your Johnson distributor.

JOHNSON Bearings

Johnson Bronze

550 South Mill Street • New Castle, Pa.

Subsidiary: Apex Bronze Foundry Co., Oakland, Cal.



THE RELIANCE SUPER 'T'

A New Kind of D-c. Motor With DYNAMIC RESPONSE

Here is a motor built to make maximum use of d-c. flexibility. The Super 'T' puts Dynamic Response into starts, stops, and speed changes. Dynamic Response gives you a 50% increase in torque and a 50% decrease in reaction time.

This top performance is due to advanced balanced design. Lighter, small diameter armatures cut mechanical inertia 50%. Superior Class B insulation, gives extended life even at temperatures as great as 130°C.

Top grade insulation plus engineered ventilation lets the Super 'T' take tremendous overloads. In fact, the Super 'T' can develop double normal horsepower during starts, stops, and speed changes.

The Super 'T' is a compact power package, designed inside and out for tough industrial service. From appearance to performance, the Reliance Super 'T' with Dynamic Response is today's most modern industrial motor.

D-1577

RELIANCE ELECTRIC AND ENGINEERING CO.

DEPT. 48A, CLEVELAND 17, OHIO
CANADIAN DIVISION: TORONTO, ONTARIO
Sales Offices and Distributors in principal cities

Radical new concept in handling bearings speeds shipping

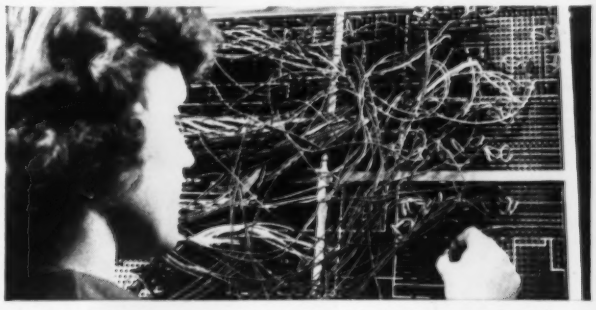
Helps you 6 ways when you buy Timken® bearings

To give you faster, better service when you buy Timken® tapered roller bearings, the Timken Company has developed a revolutionary new concept in warehousing, order processing and shipping. All the elements of the system converge at our huge new $3,000,000 Shipping Center in Bucyrus, Ohio, that enables us to get your bearings out faster and more dependably than ever before. It helps you in six important ways.

1. Reduces time required to process your bearing order. The new system, which uses the electronic computer, enables us to give you an acknowledgment and shipping date on most orders within 24 hours. **2. Cuts shipment and invoice preparation time.** Makes things easier for your purchasing department.

3. Your order comes completely from one shipping point. Single source handling further speeds your bearing shipment. **4. Your orders having the same shipping date are consolidated.** Increases handling efficiency at your plant when you receive your Timken bearings.

5. The new system helps assure delivery when promised, because it controls our production to meet your needs. **6. It gives you a practically** unlimited source of supply for tapered roller bearings, from our normal warehouse inventory of over 12 million bearing cones and cups.



And the IBM Computer (grid of which is shown above) is the system's heart. It integrates the Shipping Center with all our production facilities—controls the system which speeds order processing and keeps our production in line with your needs. This totally new concept in customer service is one more reason why you get your No. 1 bearing value when you buy Timken bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

BETTER-ness rolls on

TIMKEN®

tapered roller bearings